

AT&T Security System 8300

Installer's Manual

Issue 1.3
July, 1991

Part Number
846 503 944

CCU Main Board and Display Control Keypad Compatibility

Only the enhanced Display Control Keypad can be used with the enhanced CCU Main Board. The enhanced CCU Main Board and the enhanced Display Control Keypad provide expanded Listen-In/Talk-Back capabilities, described in *Appendix D Listen-In/Talk-Back*. Table 0-1 describes compatibility between the two different versions of the CCU Main Board and the two different Display Control Keypads.

You can identify the enhanced CCU Main Board by locating the sticker described in Figure 0-1. You can identify the enhanced Display Control Keypad by locating the sticker described in Figure 0-2.

Table 0-1. CCC Main Board and Display Control Keypad Compatibility

CCU Main Board	Compatible Display Control Keypad
Model 8300 CMP1 without the sticker that is shown in Figure O-1	Model 8345 Comcode 105691539 SKU 00865
Model 8300 CMP1 with the sticker that is shown in Figure O-2	Model 8345 Comdode 106776164 SKU 360 10

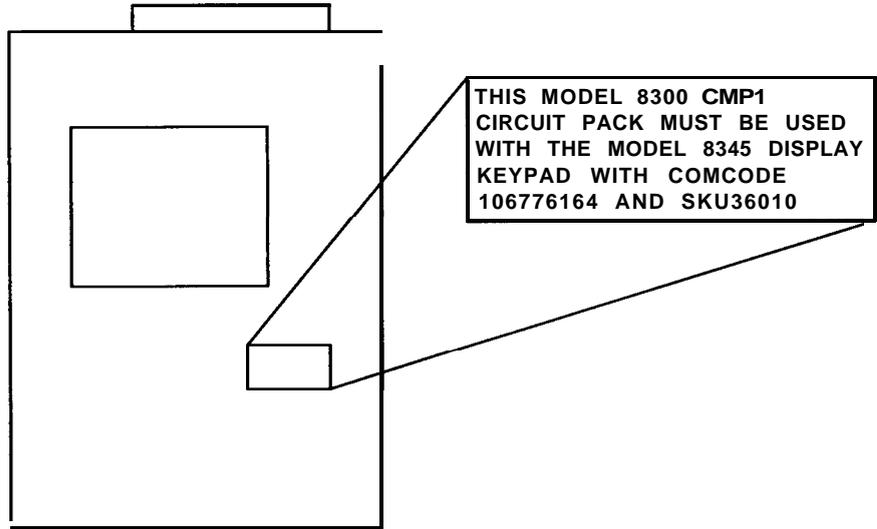


Figure O-1. CCU Main Board

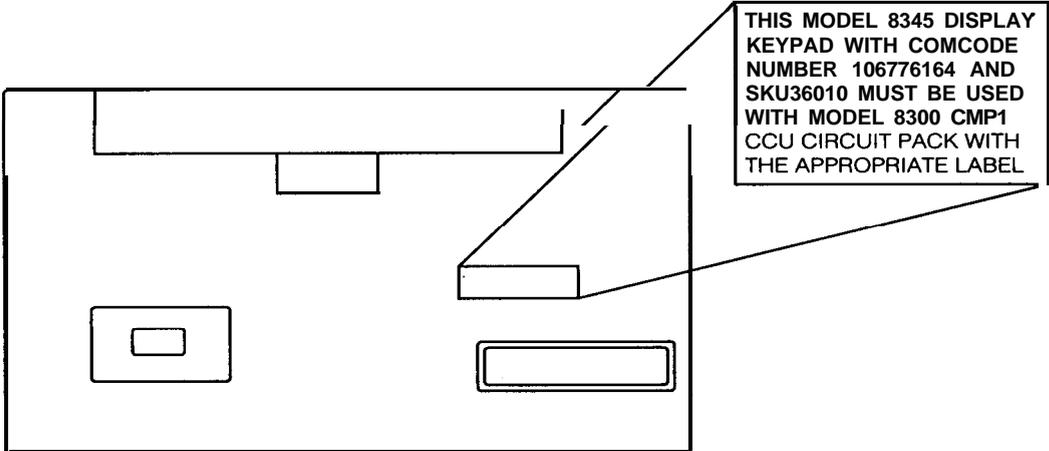


Figure O-2. Display Control Keypad

Contents

1	Introduction	1-1
	. introduction	1-1
	. UL Listing and California State Fire Marshall Installations	1-1
	. The System	1-2
	. The Parts of the AT&T Security System 8300	1-3
	Communication Control Unit (Model 8300)	1-3
	Display Control Keypad (Model 8345)	1-4
	Control Keypad (Model 8340)	1-4
	Hardwired Zone Sensors	1-5
	Wireless Remote/Transmitter Keypad (Model 8440)	1-5
	Wireless Smoke Detector (Model 8520)	1-5
	Wireless Passive InfraRed Detector (Model 8561)	1-6
	Universal Transmitter (Model 8240)	1-6
	Other Devices	1-7

2	Installation	2-1
	. The Basic Process	2-1
	. Basic Installation Guidelines	2-2
	. Wiring Data	2-3
	. Residential UL Requirements	2-5
	Applicable UL Listing Requirements (General)	2-5
	Notes for Residential (local) Fire (UL#985), Burglary (UL#1023), and Medical (UL#1637)	2-5

. Commercial UL Requirements	2-6
Applicable UL Listing Requirements (General)	2-6
Notes for Commercial Burglary (UL#1610, 1635, 609, and 365)	2-6
. Battery and Power Supply Considerations	2-9
Steady State Current Drain	2-9
Sample Configurations	2-10
Configuration Calculations	2-10
. Typical Standby Battery Life	2-11
. Installing Specific Devices	2-12
Telephone Jack	2-12
Communications Control Unit (CCU)	2-12
Other CCU Devices	2-15

3

Programming the System 3-1

. Introduction	3-1
. Programming Lists	3-1
. Manual Programming	3-2
. Example: Moving Through the Grid	3-5
. Example: Key Terms for Sensor Programming	3-8
Example	3-8
. Programming Options-Short Version	3-9
. Programming Options-Long Version	3-11
. Programming Error Messages	3-23
. UL Programming Requirements	3-24
System Defaults for Fn#411 thru 414	3-25
Programming for Multiple Tamper Requirements	3-25
. Monitoring Service Program Data	3-26
3/1 and 4/1 Extended, and 4/2, Reporting Data	3-26
SIA Reporting Data	3-28
Receiver Format 4/9	3-29
Receiver Compatibility	3-30

4	Start-Up, Testing, and Troubleshooting	4-1
	· Initial Testing	4-1
	Siren Test	4-1
	Relay Test	4-1
	X-I O Test	4-1
	Verification Test	4-2
	· Troubleshooting	4-3

5	Operations	5-1
	· Introduction	5-1
	· Operations During AC Power Loss	5-1
	· Keypad Usage	5-2
	· Silence (Keypads in the Bedroom)	5-2
	· Keypad as Telephone	5-2
	· Listen-In Keypad	5-3
	· The Alarm Cycle	5-3
	· Resetting the System	5-3
	· Remote Arming and Disarming	5-3
	· CCU Low Battery Reports	5-4
	· Battery Replacement	5-4
	· About Supervision of the Hardwire Loops	5-4
	· About Supervision of the Wireless Components	5-4
	· About Supervision of the Keypads and CCU	5-5
	· About Supervision of Phone Lines	5-5
	· Handling Interruptible Power for Smoke Sensors	5-5
	· Zones	5-5

A	Wireless Considerations	A-I
.	Installation Note	A-1
.	Verifying the Communications Link	A-1
.	Using the Installer Test Mode (Fn#014)	A-1
.	Reception Factors	A-2
.	Options	A-3
.	Installing Wireless Components	A-3
	Wireless Module and Antenna	A-3
	Remote Antenna Coupling Unit	A-5
	Wireless Remote/Transmitter Keypad	A-5
	Universal Transmitter	A-0
	Smoke Detector	A-10
	Passive Infrared Transmitter (PIR)	A-13

B	Unique Sensor Identification Using Extension Codes	B-1
.	Introduction	B-1
.	The Example Table	B-1
	The Report Code	B-2
.	The Process	B-2
.	Summary	B-7

C	Forms	C-1
	. Sensor Programming Sheet	c-2
	. User Programming Sheet	C-5
	. Keypad Programming Sheet	C-5
	. Remainder: Variables Not Covered on Other Sheets	C-6
	. Work Sheet for Extended Reporting with Sensor/Zone ID	c-7

	Glossary	GL-1
--	-----------------	-------------

	Index	IN-1
--	--------------	-------------

Figures

1	Introduction	
	I-1 System Diagram	I-2
	I-2 Display Control Keypad	I-4
	I-3 Control Keypad	I-4
	I-4 Wireless Remote/Transmitter	I-5
	I-5 Wireless Smoke Detector	I-5
	I-6 Wireless PIR	I-6
	I-7 Universal Wireless Transmitter	I-6

2	Installation	
	2-1 Non-UL Wiring Options	2-4
	2-2 Open Loop (Fn#515 = 1)	2-4
	2-3 Closed Loop (Fn#515 = 0)	2-4
	2-4 Suggested System for UL Residential Local Fire (UL#985), Burglary (UL#1023), and Medical (UL#1637)-See Notes	2-7
	2-5 Suggested System for UL Commercial Burglary (UL#1610, 1635, 609, and 365)-See Notes	2-8
	2-6 Typical Battery Life vs. Current, for 7 Amp-Hour Battery	2-11
	2-7 Mounting the PWB Central Controller	2-14
	2-8 Ground Start Relay	2-16
	2-9 Tamper Switches	2-16
	2-10 Two-Line Switcher	2-17
	2-11 Supervision with RJ-31X	2-18
	2-12 Expansion Module	2-18
	2-13 Adjunct Communicator Module	2-20
	2-14 Keypad Mounting	2-21
	2-15 Keypad Settings and Connections	2-22

2-16 Open Loop Keyswitch	2-23
2-17 Hardwired Smoke Detectors	2-24
2-18 UL Bell Wiring	2-25

3 Programming the System

3-1 Entering Letters and Numbers	3-3
3-2 Function Numbers Visualized as a "Grid" to Fill Out	3-4
3-3 Keypad Button Functions	3-5
3-4 Moving Through the Grid	3-6
3-4 Moving Through the Grid (cont'd.)	3-7

A Wireless Considerations

A-1 Installer Testing Link	A-2
A-2 Wireless Module	A-4
A-3 Remote Antenna Coupling Unit	A-5
A-4 Remote Transmitter	A-7
A-5 Universal Transmitter	A-9
A-6 Smoke Detector (Model 8520)	A-11
A-7 Passive Infrared Detector (PIR)	A-12

Tables

2	Installation	
	2-1 Residential UL Listings	2-5
	2-2 Commercial UL Listings	2-6
	2-3 Power Drain for System Components	2-9
	2-4 Possible System Configurations	2-10
	2-5 Power Usage versus Alarm Times	2-10
	2-6 How To Eliminate Sounds	2-21

3	Programming the System	
	3-1 UL Programming Requirements	3-24
	3-2 Programming Defaults, Categories versus Response Type (Fn# 411-414)	3-25
	3-3 SIA Message Format	3-28
	3-4 Compatibility with Commonly Used Monitoring Service Receivers	3-30

B	Unique Sensor Identification Using Extension Codes	
	B-1 Example of Priority Progression for Report Codes	B-2
	B-2 Example: Steps 1 Through 6	B-3
	B-3 Example: Step 7	B-5
	B-4 Example: Steps 8 and 9	B-6

Introduction

1

Introduction

This introduction contains the initial information that you will want to study during your first exposure to the AT&T Security System 8300, and may wish to review occasionally thereafter. It is meant to provide an overall understanding (the “big picture”) that will help you use the AT&T devices and the information that is presented in the following chapters of this manual.

UL Listing and California State Fire Marshall Installations

This manual may include configurations, programming setups, and references to equipment, that are not UL listed and therefore should not be used in UL listed or CSFM installations. System UL requirements are shown in the drawings and tables of Figures 2-4 and 2-5, and information supplied with discussions of specific devices. For UL and CSFM installations, all equipment and wiring, and configurations must be UL listed or CSFM approved and installed by a qualified

security professional in accordance with NFPA Standard 74, which is available from:

National Fire Prevention Assoc.
Batterymarch Park
Quincy MA 02269

Applicable UL household standards are:

- . UL 1023: household burglar alarm systems
- . UL 985: household fire warning systems
- . UL 1637: household medical alarm systems

Applicable UL standards for merchant’s reporting alarm systems are:

- . UL 365: police station connected burglar alarms
- . UL 609: local burglar alarms
- . UL 1610: central station (monitoring service) alarms
- . UL 1635: for digital communicators used in central station reporting.

UL listed devices will have the UL Label affixed to them.

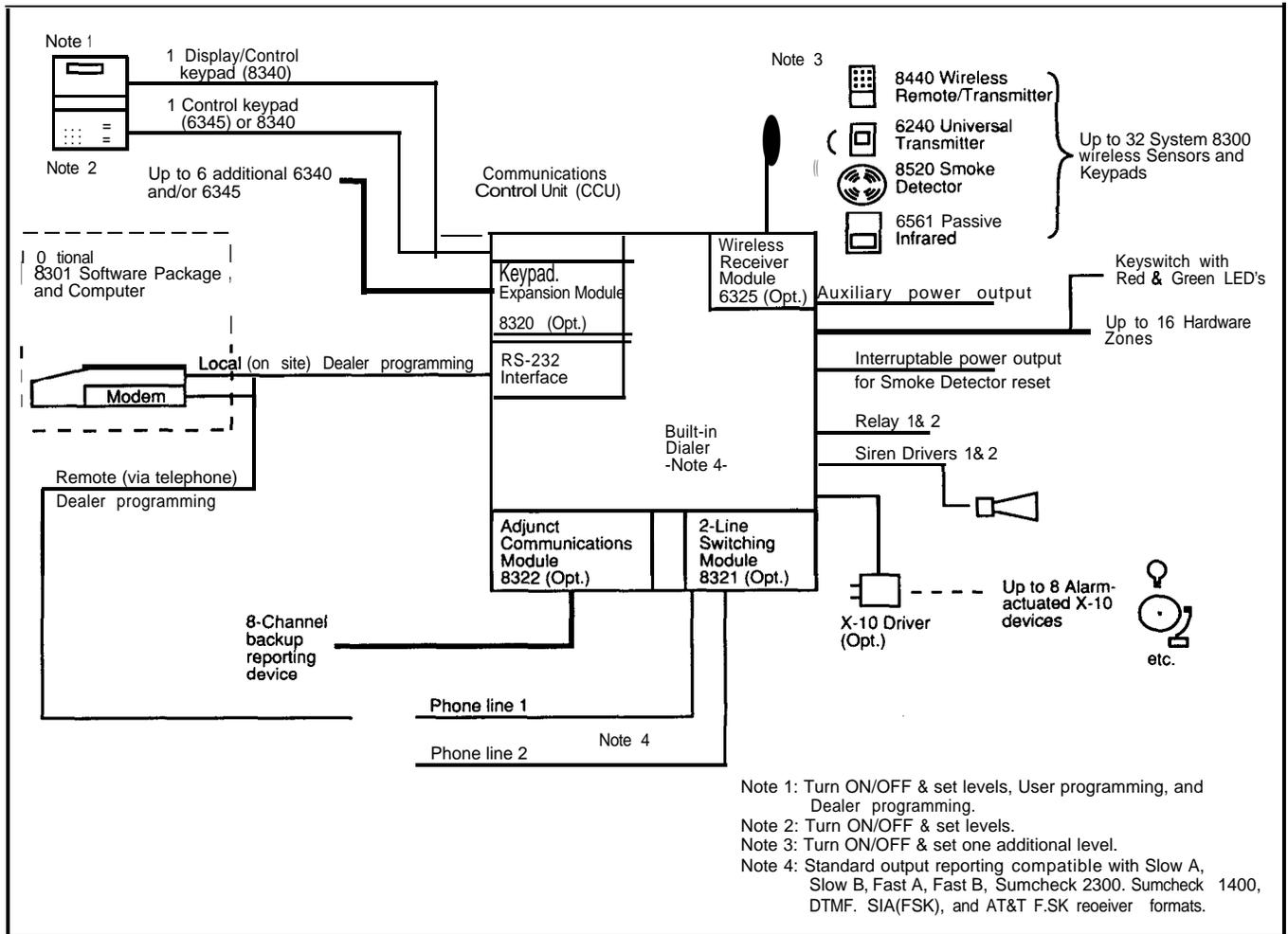


Figure I-1 System Diagram

The System

AT&T Security System 8300 offers all of the normally expected capabilities and more. It is for residential and small-to-medium business applications. It can have up to 16 hardwire zones and up to 32 wireless devices, all supervised.

Figure I-1 shows a diagram of the system.

System 8300 supports 4 Levels of Protection (OFF, DAY, NIGHT, and AWAY) for increased flexibility in user service. For added flexibility, in design and set-up, the installer can program the system's response to each zone and each wireless transmitter for every one of the 4 levels of protection. The system is provided with a default set, to minimize the programming requirements.

Two types of wired Control keypads can set the 4 basic Levels of Protection; they have status LED's, and two-button "Emergency" (definable by

the Installer) and "Police" alarms. The "Display" version of the Control Keypads (explained in the following sections) also has both telephone and intercom capability built in; it also has a liquid crystal (text) display to help with programming, show status, and indicate the type and location of trouble and alarms. A third type of control is the Wireless Remote/ Transmitter keypad.

User programming includes a test mode, time/date setting, on/off control of the chime option, adding and removing user codes, and bypassing (shunting) sensors if allowed by the Installer's programming. The Display Control Keypad's display helps users do as much (or as little) programming as they wish. Four levels of User Access Codes control the level of user programming, from simply arming the system to the complete User Programming package.

More powerful "dealer" programming can completely configure the system, using either of two methods. Manual programming can be performed from a Display Control Keypad on the site. An optional computer program* makes the job faster and easier and allows the programming to be done either on site or remotely, via telephone modem, using a special secure communication process (patent applied for).

The System 8300 communicator/dialer is compatible with many common receivers and supports split, alternate, and parallel reporting.

The Parts of the AT&T Security System 8300

Communication Control Unit (Model 8300)

The Communication Control Unit (CCU) is the brain of the system, since it keeps track of the sensors and makes the decisions about what to do if the status of a sensor changes. It is also the heart of the system, since its power supply provides the power for its own operations and its hardwired sensors; its back-up battery takes over if the house power is interrupted.

The CCU supervises sensors, notifies the user of everyday matters like low sensor batteries or windows left open, and communicates to the monitoring service as programmed by the Installer.

Additional options are available for the CCU, as required for specific installations:

1. A Wireless Receiver Module (Model 8325) provides the CCU with the ability to communicate with AT&T wireless sensors (discussed in following pages).
2. The RCB Expansion Module (Model 8320) allows wiring more than two keypads to the CCU.
3. The Two-Line Switcher Module (Model 8321) allows the CCU communicator to take advantage of two telephone lines.
4. The Adjunct Communicator Module (Model 8322) allows the system to drive an external 8-channel communicator (eg., a radio transmitter) as a primary or secondary reporting device.
5. A Ground Start Relay (purchased separately) allows the CCU to obtain a dial tone when used with private business phone exchanges.

* CCUBOSS program requires an IBM@.PC or 100% compatible computer and a 300-baud, Hayes-compatible modem.

Display Control Keypad (Model 8345)

The Display Control Keypad (see Figure I-2) is the primary way of communicating with the CCU, and at least one of them is required for every system. Up to 8 keypads (maximum of 5 of them Display type) may be used in a single system (maximum of 4 for UL Listed systems). The dealer/installer can completely program the System 8300 through the Display Control Keypad; the user can perform the User-Level programming operations with it.

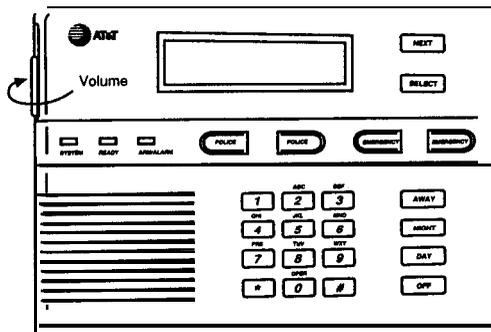


Figure 1-2 Display Control Keypad

In addition to the status-indicating LED's, the Display Control Keypad has a Liquid Crystal Display (LCD) which provides specific status information, visual feedback, and guidance during programming. Audible feedback, error tones, chimes, alert tones, and phone/intercom audio are provided by the built-in audio system; unnecessary sounds can be silenced with the Volume control on the case. Pushbuttons provide programming, alarm entry, and protection level setting. Built-in backlighting makes it possible to read the display and see the pushbuttons in total darkness.

The Display Control Keypads can be used as Listen-In devices to allow the monitoring service to listen following an alarm report.

NOTE:

This service may not be provided by all Monitoring Services.

Control Keypad (Model 8340)

The Control Keypad (see Figure I-3) is similar to the Display Control Keypad in that it accepts Access Codes and allows the user to change the system's level of protection (unless the need for bypassing complicates the issue). In addition it provides audible and LED alarm information. But it does not display written information, or give the ability to program the system (beyond the OFF, DAY, NIGHT, and AWAY levels of protection), and doesn't have phone or intercom capability. Since it may be used in places where unnecessary sounds from the system are not desired, there is a switch provided on the Control Keypad which will turn off audible signals other than alarms, so the keypad may be used in areas where such sounds would be distracting or offensive (baby's room in a home, an office or sales area in a commercial installation).

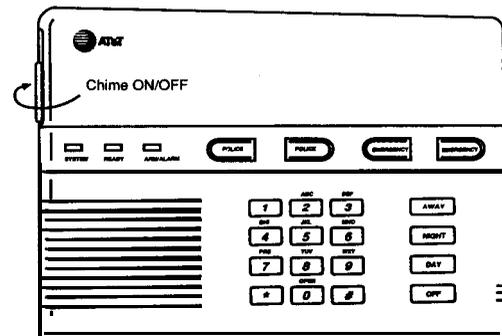


Figure 1-3 Control Keypad

Hardwired Zone Sensors

System 8300 accepts up to sixteen hardwired zones. As with all hardwired zones, no sensor in any one zone can be differentiated from any other. Hardwired zone sensors offer a convenient and inexpensive way to provide a single type of protection for a large area, using a large number of sensors without the cost and complexity of identifying and treating each sensor separately. Supervision is by end-of-line resistor.

Wireless Remote/Transmitter Keypad (Model 8440)

This device (see Figure 1-4) provides some of the keypad services, but also has some very different characteristics. It can accept its own special Access Code (not the same as the codes programmed into the rest of the system), and set the system to three of its four possible levels (providing a portable system keypad, for special requirements). Its ALARM button is the same as POLICE buttons on the other keypads. In addition, it has terminals to accept a hardwired external sensor (or sensors), a tamper switch, and a button to bypass that sensor for a short (40 second) exit period. It beeps to indicate keypresses and transmission of a change-of-protection-level to the CCU

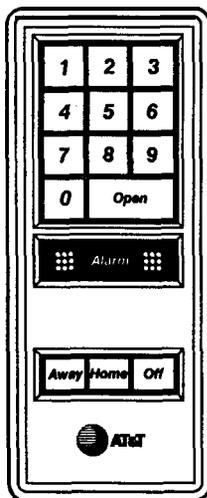


Figure 1-4 Wireless Remote/Transmitter

Since it is a wireless unit, it requires a battery for operational power. Like the other wireless devices, it will indicate a low battery condition to the CCU at least seven days before it actually stops working.

Wireless Smoke Detector (Model 8520)

This device (see Figure 1-5) is a photoelectric detector that, when activated, transmits a wireless message to the CCU. This smoke detector is battery powered and does not require any wiring.

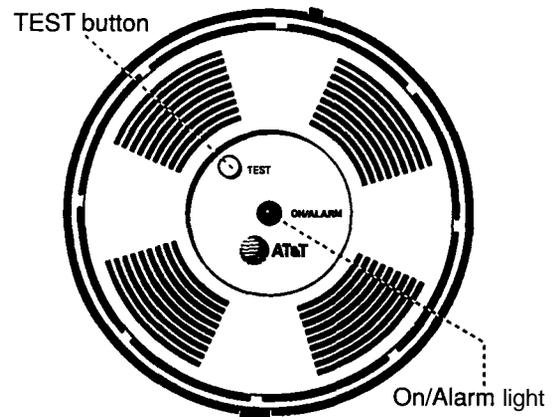


Figure 1-5 Wireless Smoke Detector

The red LED on the case flashes about every 7 seconds, to indicate proper operation. If smoke is detected, the LED will light, the device will immediately begin to sound its alarm, and will transmit an alarm signal to the CCU, which will respond as programmed.

A pushbutton on the case will test the detector and send the alarm signal to the CCU.

A WARNING:
To avoid false alarms, set the system to the Test mode before testing the detector,

As the battery voltage begins to get low, the device itself will begin to beep about every fourteen seconds. If this does not result in the batteries being replaced within a reasonable time, the smoke detector's transmitter will send a low battery signal to the CCU. This second warning occurs with at least seven days of normal operation left, allowing Dealer or User to replace the battery without loss of protection. Notice that a specific battery type is required for smoke detectors because of its size (see "Maintaining Battery Powered Devices" in the "Maintenance and Periodic Testing" portion of the user's manual).

The PIR is a motion detector which detects intruders by observing the infrared energy they emit as they cross the optical detection zones. When the PIR senses an intruder, it sends an alarm message to the CCU, which responds according to its programming; to conserve the batteries, it will not send another alarm for 2-1/2 minutes. The ePIR features an LED for walk testing the unit and a built-in tamper switch which activates when the housing is opened. When the battery gets low, the PIR transmits a low battery message to the CCU; at this time, there will be power for at least seven days of proper operation.

Wireless Passive InfraRed Detector (Model 8561)

Like other wireless devices, the PIR (see Figure 1-6) is battery powered and communicates by radio transmission.

Universal Transmitter (Model 8240)

Like the other wireless devices, this one (see Figure 1-7) is battery powered and communicates by radio transmission to the CCU. It does not have its own sensor, but can be connected to other sensors or used as a personal distress transmitter (with the pushbutton on the case) and carried throughout the premises.

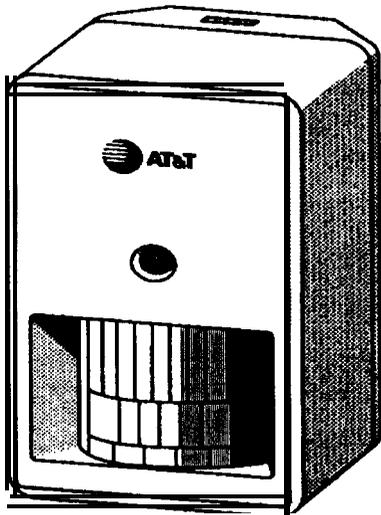


Figure 1-6 Wireless PIR

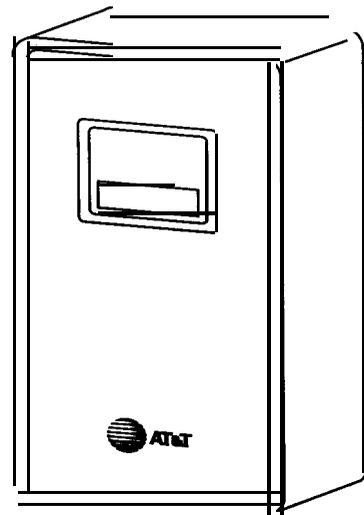


Figure 1-7 Universal Wireless Transmitter

Like the others, it transmits a low-battery signal to the CCU and also has a tamper switch.

Other Devices

In addition to the previously mentioned devices, your system might include:

- Special sensors or switches (connected to a universal wireless transmitter or hardwired zone): audio discriminators, mechanical glass break sensors, temperature and ionization sensors, all types of reed switches. Must be UL listed for UL listed installations.
- Sirens or horns which fit the systems electrical specifications. (UL listed for UL installations)
- Keyswitches (using two LED's, which reflect the operation of the Ready and Alarm LED's on the keypads).

Special X-10 units to turn on lights or other electrical devices in response to installer programmed sets of conditions. (The operation of the X-10 interface has not been investigated by UL.)

- Other (electrically compatible) devices chosen or designed to fill your specific needs.

Installation

2

The Basic Process

The two primary System 8300 installation operations are "programming" and the physical installation. You must decide whether to do much of the programming before the actual installation or leave it all until after.

During programming you supply considerable information and instructions to the CCU, to take advantage of the system's great flexibility. Chapter 3 covers this process in depth.

For convenience, you can perform all or most of the programming operations at the dealership before installation ever begins (you must not make sensors "active," Fn#519, before they are connected; you may wish to delay certain other programming). This can be done either manually with a Display Control Keypad, or with the optional CCUBOSS program and an IBM compatible MS-DOS personal computer, and does not require that the hardware be attached to the CCU.

Once the CCU is programmed, you can remove AC power and even the battery, as long as you have provided back-up power for the RAM

(memory) by moving the lithium battery jumper, J102, on the circuit board to the ON position. Under a typical load the lithium battery will maintain the memory for more than 1 year; under normal AC power or with the jumper off, the life is as long as 10 years. The programmed information will remain in the CCU's RAM until the CCU is installed in a system. Changes in the system configuration can be made at any time using manual programming (or CCUBOSS) to change only those items requiring attention.

The following list represents one orderly process for performing an installation. If this is your first view of the system and this manual, some of the terms may be unfamiliar to you; these terms will be explained in this section and the next, and may be found in the glossary at the end of the manual. Your choice of approach may follow the one below or may be different, depending on personal preferences, the equipment available, and the application and installing conditions.

NOTE:

UL installations must be in accordance with the appropriate commercial or residential requirements indicated in Figures 2-4 and 2-5 and its tables and notes.

Basic Installation Guidelines

1. Plan or review the installation.
 2. You may choose to program the CCU at your workbench before going to the site. You can do all programming (except for Fn#519, mentioned above), or enter only the information that is considered firm. This can be accomplished quite easily with the optional computer program, CCUBOSS.
 3. Be sure the lithium battery is enabled (jumpered to the ON position).
 4. Move to installation site.
 5. Check the CCU installation site in terms of:
 - a. Having access to the phone line(s) where they enter the site, or at least in front of any phone connections.
 - b. Having power outlets (preferably within 25 feet) for power supply and X-10 module (if used).
 - c. Wireless environment and reception with the CCU temporarily held in place (if wireless is used). If necessary, move sensors or CCU, or use remote CCU antenna.
 - d. Physical mountability of the CCU.
 - e. Appearance and accessibility considerations.
 6. Examine the proposed locations for Display keypads. If they are too close, acoustically, feedback may occur in intercom or phone modes.
 7. Run and label all wiring. Figure 2-1 shows and labels all connecting points.
 8. Install the CCU in a safe interior location:
 - a. Mount the cabinet and bring the wiring into it. If your system uses wireless devices bring all wiring into the enclosure at the bottom, away from the wireless module and the antenna.
 9. Connect power to the CCU.
 10. Configure, hook up, and mount system sensors (this can be done by a second installer while the first installer is working on the CCU).
 11. Hook up and mount the Display Control Keypads. Verify each one separately as you connect it.
 12. Hook up Control keypads and mount them.
 13. If the CCU has not already been programmed, or if additional or corrective programming is required, do this now.
 14. Put the system in the Verification Test mode, Fn# 014 (see Chapter 3 on programming).
 15. Perform the Verification Test to verify that each sensor is operating and properly identified. Make any necessary changes or corrections until all existing sensors are located and properly identified by the CCU.
 16. Check the CCU programming to see that only the actual sensors have been activated in the CCU's memory. (Use User Programming to list the Bypassed and the Unbypassed sensors.) Make the necessary corrections for any incorrect sensor numbers.
- Refer to the Appendix for other wireless considerations. This will help reception considerably.

-
17. Verify that system operates properly in each Level of Protection (OFF, DAY, NIGHT, and AWAY) by setting the system to that Level and actually verifying responses.
 - a. LED operation at every keypad, under every condition.
 - b. Presence of keybeeps, chimes, tones, and alarm sound at Display Control Keypads.
 - c. Operation of every entry key (as signified by a keybeep).
 - d. Operation of Emergency and Police key pairs.
 18. Verify that the system communicates properly with the Monitoring Service, using the test procedures accepted by the Service (connect the phone line to the system first).
 19. Verify or program correct house code into the X-10 devices and control circuit, and connect the X-10 wall cube and slave device(s). Verify that the controlled devices operate correctly by energizing them from Fn# 013.
 20. Connect the other peripheral devices (sounders and relay-controlled devices; UL and NFPA require that sounders be located indoors). Test these devices using Fn# 011 and 012.
 21. Do a full system test.
 22. Use your company's checklist to make your presentation of the system to the owner/ user. Remember that a well-prepared user will result in more satisfaction, fewer callbacks, and positive word-of-mouth advertising in a business that profits greatly from customer recommendations.

Wiring Data

1. Use Earth Ground for the CCU except in UL listed Residential Fire applications. The preferred ground is an 8 foot copper clad ground rod located close to the power and telephone ground rods, and electrically connected to each. Conductive metal cold water pipe may constitute a valid earth ground. Connect (solid 14 gauge) wire from the earth to any one of the 4 corner mounting screws of the CCU main board. Keep the wire as short as is practical, don't coil or bend it, and don't run it with other wires.
2. Use a minimum of 22 gauge wire for system wiring and do all wiring in accordance with national and local codes.
3. If your installation uses the wireless module and transmitters, reception will be greatly improved by keeping the wiring down and away from the module and antenna. Run wires into the enclosure at the bottom.
4. You may connect no more than 2 wires to any CCU terminal strip connector. If you have 3 wires, you must find another connector for the third wire.
5. Keypads (Display and Control) require three twisted pair, 22 gauge—such as Belden solid 8742 (non-UL), stranded 9745 (non-UL), or 2464 (UL), or equivalent.

A possible (non-UL) alternative is 22-gauge, 4-conductor, phone wire plus a twisted pair of 22-gauge. Refer to Figure 2-1. *For phone wire, make sure that each function (Dat or Aud) is connected to wire pairs that are diagonally opposite each other in the cable.*

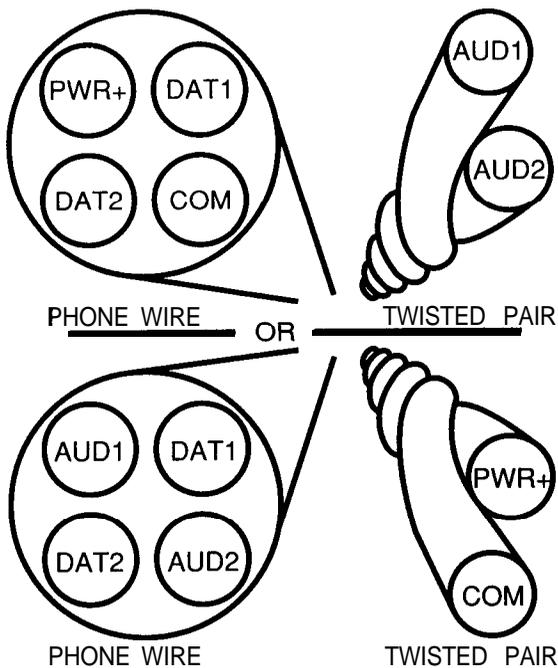


Figure 2-1 Non-UL Wiring Options

Wire the keypads in the “star” or “home-run” configuration, with each device being wired directly back to the CCU (maximum wire run 300 feet).

NOTE:

Only two wires may be connected to any given terminal, and only two keypads can be powered from a terminal; this means that the Keypad Expansion Module must be used if more than two keypads are used. Specific information is provided in “Installing Specific Devices,” which follows the power considerations.

- Hardwired circuits may conform to either Figure 2-2 or 2-3 (Open or Closed). The end-of-line resistor is 1000 ohms. For household fire applications, use UL listed end-of-line resistors (AT&T part # 846626109) and the Open Loop configuration.

NOTE:

In the figures, the response to a “fault” condition is determined by programming Function Numbers (see Fn#515 in Chapter 3).

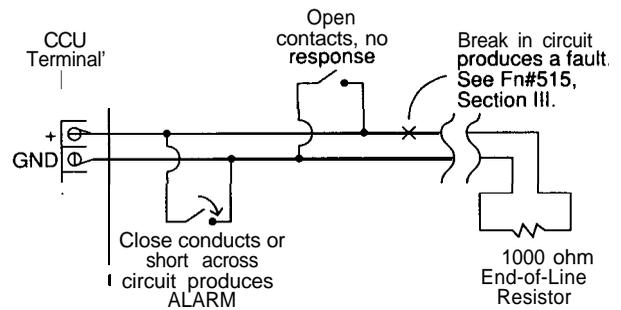


Figure 2-2 Open Loop (Fn#515 = 1)

- Hardwire smoke detectors requiring interruptible power can be wired with power directly from the INT PWR and GND terminals for low power (75 mA maximum) applications, other options are included later in this section under Hardwired Smoke Detectors. See the figure and discussion at the end of this chapter.

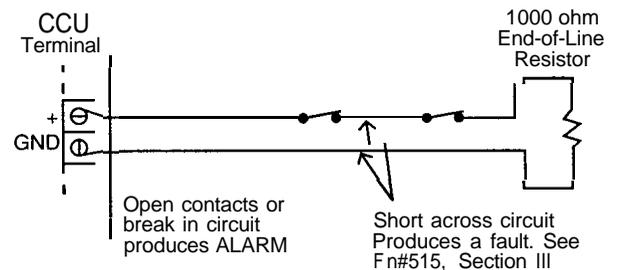


Figure 2-3 Closed Loop (Fn#515 = 0)

Residential UL Requirements

Table 2-1 Residential UL Listings

Type of Application	Governing UL Standard	Required Auxiliary Equip	Optional Auxiliary Equip
Residential Burglary	UL1023	UL Listed Horn (Wheelock, EH-EL2-WI)	Two-Line Switcher (8321) Adjunct Communicator (8322) +RF Transmitter (ADEMCO 7620 & 488-I 2 Power Supply) Keyswitch (ADEMCO 9789)
Residential Fire (local alarm)	UL985	UL Listed Smoke Detector (ESL, 445A or 445AT) plus Power Supv. Relay (ESL, 204A) UL Listed Horn (Wheelock, EH-EL2-WI)	Two-Line Switcher (8321) Adjunct Communicator (8322) +RF Transmitter (ADEMCO 7620 & 488-I 2 Power Supply) Keyswitch (ADEMCO 9789)
Residential Fire plus Burglary	UL1023, UL985	UL Listed Smoke Detector (ESL, 445A or 445AT) plus Power Supv. Relay (ESL, 204A) UL Listed Horn (Wheelock, EH-EL2-WI)	Two-Line Switcher (8321) Adjunct Communicator (8322) +RF Transmitter (ADEMCO 7620 & 488-I 2 Power Supply) Keyswitch (ADEMCO (9789)
Residential Medical	UL1637	Wireless Rcvr Module (8325) +Universal (8240)	

Applicable UL Listing Requirements (General)

Standby operation:	4 hours minimum
Alarm Operation:	5 minutes minimum at end of standby period
Standby Current Consumption*:	475 milliamperes maximum
Alarm Current Consumption*:	1.475 amperes maximum (400 ma Aux, 75 ma Interruptible Aux, 1 .0 amp total sirens)
Operating Voltage Range*:	9 to 15 volts DC (10 to 15 VDC for Aux Power)
Keypads:	2 minimum, for supervision requirements; 4 maximum
CCU Location:	Must be inside premises, not exposed to the elements or to attack.
Operating Voltages:	All devices powered from the CCU Aux Pwr, Siren or Interruptible Power.

* From Aux Pwr (Aux only has IO-15VDC available), Interruptible Aux Pwr, and Sirens 1 and 2 outputs.

Notes for Residential (local) Fire (UL#985), Burglary (UL#1023), and Medical WL#1637)

1. Fire: Do not use green wire (earth) grounding of the CCU.
2. Fire: Use AT&T End-Of-Line terminating resistors (part #846 626 109) on all UL hard-wired fire zones.
3. Fire, Burglary, Medical: At least two keypads must be used (only one is required to be Display/ Control, others may be Control keypads). This allows keypad supervision, which is required since keypads are devices which can be used to enter alarms.
4. Fire, Burglary: X-10 devices may not be used as primary indicating devices-use as secondary devices only.
5. Fire and Burglary: listings require at least 4 hours of standby (non-alarm) operating time, followed by capability for at least 5 minutes of alarm time. This limits the allowable configuration to 4 keypads plus 475 mA current to non-integral system devices (aux power; aux interruptible power; and 1 .0 Amperes for sirens 1 and 2, maximum total for 1 or 2 sirens).
6. Fire, Burglary, Medical: Use UL listed peripheral devices named in the table only, using unlisted devices will prevent the system from qualifying for the UL listing. For emergency zones, use only UL Listed medical signaling initiation devices.
7. Non-UL devices may be added (to non-UL functions in the systems) as long as these devices do not in any way affect the UL Listed functions of the system. Of course these devices and their functions must not be considered as part of the UL Listed functions of the system.
8. Only 75 ma available from interruptible Aux Power; see end of chapter to wire more than 2 hardwire sensors (non UL).
9. The ADEMCO 7620 has not been investigated for use in UL Listed applications.

Commercial UL Requirements

Table 2-2 Commercial UL Listings

Type of Application	Governing UL Standard	Required Auxiliary Equip	Optional Auxiliary Equip
Commercial Burglary (Central Station Grade C)	UL1610 with UL1635	na	Two-Line Switcher (8321) Adjunct Communicator (8322) +RF Transmitter (ADEMCO 7620 & 488-12 Power Supply) Keyswitch (ADEMCO 9789)
Commercial Burglary (Central Station Grade B)	UL1610, UL1635	for UL 163.5, UL Listed Bell/Housing (ADEMCO AB-12)	Two-Line Switcher (8321) Adjunct Communicator (8322) +RF Transmitter (ADEMCO 7620 & 488-12 Power Supply) Keyswitch (9789)
Commercial Burglary (Local Alarm, Grade A)	UL609	UL Listed Bell/Housing (ADEMCO AB-12)	Two-Line Switcher (8321) Adjunct Communicator (8322) +RF Transmitter (ADEMCO 7620 & 488-12 Power Supply) Keyswitch (9789)
Commercial Burglary (Direct Phone to Police, Grade A)	UL365	UL Listed Bell/Housing (ADEMCO AB-12) Adjunct Communicator (8322) +Phone Line Voltage Booster (ADEMCO 349)	

Applicable UL Listing Requirements (General)

Standby operation:	4 hours minimum
Alarm Operation:	15 minutes minimum at end of standby period
Standby Current Consumption*:	475 milliamperes maximum
Alarm Current Consumption*:	1.475 amperes maximum (400 ma Aux, 75 ma Interruptible Aux, 1 .O amp total sirens)
Operating Voltage Range*:	9 to 15 volts DC (10 to 15 VDC for Aux Pwr)
Keypads:	2 minimum, for supervision requirements; 4 maximum
CCU Location:	Must be inside premises, not exposed to the elements or to attack.
Operating Voltages:	All devices powered from the CCU Aux Pwr, Siren, or Interruptible power.

* From Aux Pwr, Interruptible Aux Pwr, and Sirens 1 and 2 outputs.

Notes for Commercial Burglary (UL#1610, 1635,609, and 365)

- System must use commercial enclosure (Model 831 I), and incorporate tamper switches in CCU (see Figure 2-9).
- Alarm bell configuration must incorporate earth-grounding of CCU and UL Listed double-wall un-grounded tamper protection scheme, as used in the ADEMCO AB-12 bell.
- Use only UL Listed sensors, and devices shown in the Commercial UL Table
- Keypads used as alarm initiating devices must be supervised; this requires that at least two keypads be used in order for one to provide reporting on the other.
- Non-UL devices may be added (to non-UL functions in the systems) as long as these devices do not in any way affect the UL Listed functions of the system. Of course these devices and their functions must not be considered as part of the UL Listed functions of the system.
- At least one system keypad shall be a Display (Model 8345) type.
- The ADEMCO 7620 has not been investigated for use in UL Listed applications.

MAIN BOARD
(Not to scale)

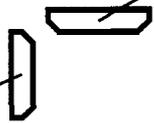
LITHIUM BATTERY JUMPER
Move jumper to ON (left) to enable battery support of systems memory. If not enabled, shut down or removal of power will cause loss of program.



RESET BUTTON
Press to reset all system memory to its factory default.

WIRELESS MODULE CONNECTOR

Plug in the cable from the wireless module here. Housecode is selected on the module itself.



2-LINE SWITCHER CONNECTOR
Connect the cable from the switcher module here.

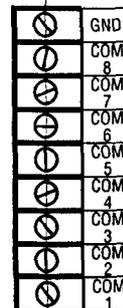
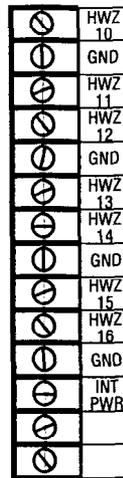
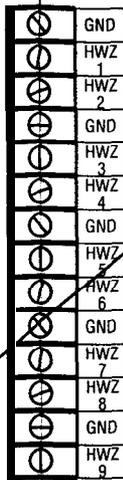
PHONE CONNECTOR
Connect the phone cable from the RJ-31X phone jack, or else the short cable from the 2-line switcher. Ringer Equivalences are 0.4A and 0.78.

See UL Note 1

LOCAL CONNECTOR
Connect RS-232 cable for direct CCUBOSS programming.

GROUND START RELAY
Used for only if grounding is required to initiate dial tone.

ON
OFF



PHONE BLOCK
MONITOR JUMPER

HARDWIRE ZONE CONNECTORS
Each numbered zone has a terminal with that number. Next to each is a GND terminal for the return wire. Up to two 22 gauge wires may be connected to any ground terminal.
See UL Note 2
See UL Note 6

INT PWR
This is a low-current source (75 ma max) of 9-15 VDC interruptible power (typically used for glassbreak detectors or relays controlling other power). Do not use devices which could draw more than 75mA in the alarm condition. Power is interrupted for 5 seconds whenever system is set to OFF Level of Protection.
See UL Note 5

BLANK
Not currently used.

OPTIONAL ADJUNCT COMMUNICATOR
These terminals provide 6-15VDC, at up to 25ma to indicate each of the 8-channel messages to the communicator (see Programming, Fn#235).

GND
This is the ground terminal for the return wire from the Adjunct Communicator.

COM8
Indicates 'System Trouble'

COM7
Indicates 'Auxiliary'

COM6
Indicates 'Emergency'

COM5
Indicates 'Fire'

COM4
Indicates 'Panic'

COM3
Indicates 'Silent Panic'

COM2
Indicates 'Intrusion, Interior'

COM1
Indicates 'Intrusion, Perimeter'

LOW AC
Connect these power inputs from the transformer to these 2 terminal.

AUX PWR+, AUX PWR-
Connect devices requiring 1 O-15 VDC, (400ma total current) power here.

SIR1-, SIREN1&2+, SIR2-
Connect the (-) siren 1 lead to SIR1- and the (+) to either SIREN1&2+. Do the same way for siren 2.
See UL Note 2

R1 COM
Relay 1 terminal connecting to the common for the relays Open and Closed contacts.

R1 NC
Relay 1 terminal to the contacts that are closed except when the relay is energized. 1 ampere rating.

R1 NO
Relay 1 terminal to the contacts that are closed except when the relay is energized. 1 ampere rating.

R2 COM, R2 NC, R2 NO
The same connections as for Relay 1.

RDY LED
Connect to the positive side of the keyswitch's green LED

RDY GND
Connect to the negative/ground side of the keyswitch's RDY LED

ARM LED
Connect to the positive side of the keyswitch's red LED

ARM GND
Connect to the negative/ground side of the keyswitch's ARM LED

DAT 1
Connect no more than 2 (22ga) wires from keypad connector pin #1

DAT 2
Connect no more than 2 (22ga) wires from keypad connector pin #2

PWR+
Connect no more than 2 (22ga) wires from keypad connector pin #3

COM
Connect no more than 2 (22ga) wires from keypad connector pin #4

AUD 1
Connect no more than 2 (22ga) wires from keypad connector pin #5

AUD 2
Connect no more than 2 (22ga) wires from keypad connector pin #6

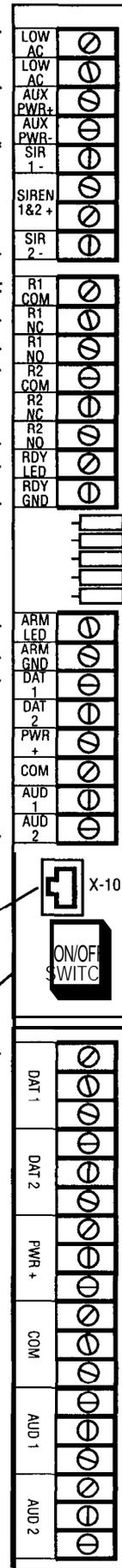
See UL Note 4

X-10 CONNECTOR
Plug in the 4-conductor phone-type cable from the X-10 Controller module

OFF/ON SWITCH
Turns all power (except RAM battery) OFF&ON

KEY PAD EXPANSION MODULE
Connect extra keypads to this module, in the same order as specified above

Do use Green Wire (earth) ground for UL Commercial Burglary.



See UL Note 1

LITHIUM BATTERY
Move battery not energized

WIRELESS MODULE CONNECTOR
Plug in the cable from the module here. Hold the module itself.

Z-LINE SWITCHER CONNECTOR
Connect the cable from the module here.

PHONE CONNECTOR
Connect the phone RJ-31X phone jack, cable from the 2-line. Equivalences are 0.4

GROUNDHERE

Battery and Power Supply Considerations

Steady State Current Drain

Use Table 2-3 to calculate your system's current drain. Each Security System 8300 device is listed; add in the current drain of other sensors

and peripheral devices that are powered from the System. Calculate to see if the standard power supply and battery are adequate for your needs,

NOTE:

Where conflicts appear with UL requirements, be sure to use only the UL ratings for any UL Listed installation.

Table 2-3 Power Drain for System Components

Device	AC Powered	Battery Powered	AC/Alarm	Battery/Alarm
Keypad, Display	70ma	50ma	170ma	1 00ma (50ma) (see Note 7)
Keypad	50ma	38ma	56ma	44ma
Basic CCU	257ma	257ma	297ma	257 (40ma for 15min)
2-Line Switcher Option (see Note 5)			20/40ma	20/40ma
Ground-Start Relay Option	30ma	30ma	30ma	30ma
Wireless Option Module	20ma	20ma	20ma	20ma
Adjunct Communicator 8-Channel Module Option (see Note 6)			(25ma) (see Note 7)	(25ma) (see Note 7)
X-10 Device Driver Module Option				
Hardwired Loops (each)	2.5ma	2.5ma	2.5ma	2.5ma
Interruptible power for hardwired Fire sensors (max.9-15 VD output)	75ma	75ma	75ma	75ma
Auxiliary Devices (max. 1 O-I 5 VDC output)	500ma	500ma	500ma	500ma
Sirens (max 9-I 5 VDC output)	1.5A each/2A total	1.5A each/2A total	1.5A each/2A total	1.5A each/2A total
Battery Charger (charging)	500ma			

NOTES:

1. The first column ("AC Powered") lists the currents drawn by the various devices (or available from the system) under normal circumstances (no alarms or troubles).
2. The second column ("Battery Powered") lists the currents drawn by the same devices (or available from the system) under the same conditions except that AC power has failed and the system is running off the CCU battery.
3. The third column lists the total current drawn by that device during operation in the "alarm" state, with AC power ON.
4. The fourth column is total current during "alarm" operation, but with power supplied by the battery rather than by AC power.
5. The 2 line switcher uses 20 ma to seize line 1, 40 for line 2 (20 to select 2, and 20 to seize it).
6. The 8-Channel driver will provide 25ma to the selected channel until the alarm is canceled.
7. Currents shown in parentheses exist during the audible alarm period (usually 15 minutes) or during the time necessary for the device to perform its action (seize and hold the phone line, or send a signal to the 8-channel transmitter).

Table 2-4 Possible System Configurations

Maximum No. of Keypads	Max Siren Current	Maximum Siren Time	UL Listed?
4	0.5	Unlimited	Yes
4	1.0	60 minutes	Yes
4	1.5	30 minutes	No
3 Display + 2 Control	1.5	30 minutes	No
3 Display + 2 Control	1.0	60 minutes	No
2 Display + 4 Control	1.5	30 minutes	No
2 Display + 4 Control	1.0	60 minutes	No
6 any combination	1.0	30 minutes	No
8 any combination	1.0 x 2 ^{Note1}	30 minutes	No
8 any combination	1.5 x 2 ^{Note2}	30 minutes	No

Note 1: Run siren power from battery through a CCU relay. May use both relays, to drive two sirens.

Note 2: Run siren power from battery through an external (higher rated) relay; drive relay from siren driver terminals.

Sample Configurations

Table 2-4 lists certain possible configurations of the System, and allows you to see the trade-offs available between the various devices in accordance with their power usage. You can design a system that uses up to the number of devices listed on any one line, but no more than that number. Note which configurations are acceptable for UL Listing.

No. of DK is the number of Display Keypads,
 I_A is the Alarm current,
 No. of CK is the number of Control Keypads,
 Aux_N is the Non-alarm current from the Aux supply (Aux , is alarm current), and
 Siren is the total siren current drain.

Configuration Calculations

For further flexibility, and since some applications allow greater power usage in a trade-off for shorter alarm times, you may calculate allowable configurations based upon the Non-alarm current drain and the Alarm Condition current drain:

$$I_s = .07 \text{ times (No. of DK) } + .05 \text{ times (No. of CK) } + Aux$$

$$I_A = .15 \text{ times (No. of DK) } + .06 \text{ times (No. of CK) } + Aux + Siren$$

where:

I_N is the Non-alarm current,

Table 2-5 Power Usage versus Alarm Times

Non-Alarm Current I_N	Alarm Current I_A		
	1.5	2.0	2.5
1.5	Unlimited	10 mins.	5 mins.
1.2	Unlimited	30 mins.	15 mins.
1.0	Unlimited	45 mins.	20 mins.
0.7	Unlimited	60 mins.	30 mins.

These limits are valid for a temperature environment of 40°C maximum for the transformer.

In Table 2-5, read across from your I_s (column 1) and read down from your I_A to find the length of Alarm Time that system will provide. If the time is too short, you must find a way to reduce the I_s and/or I_N .

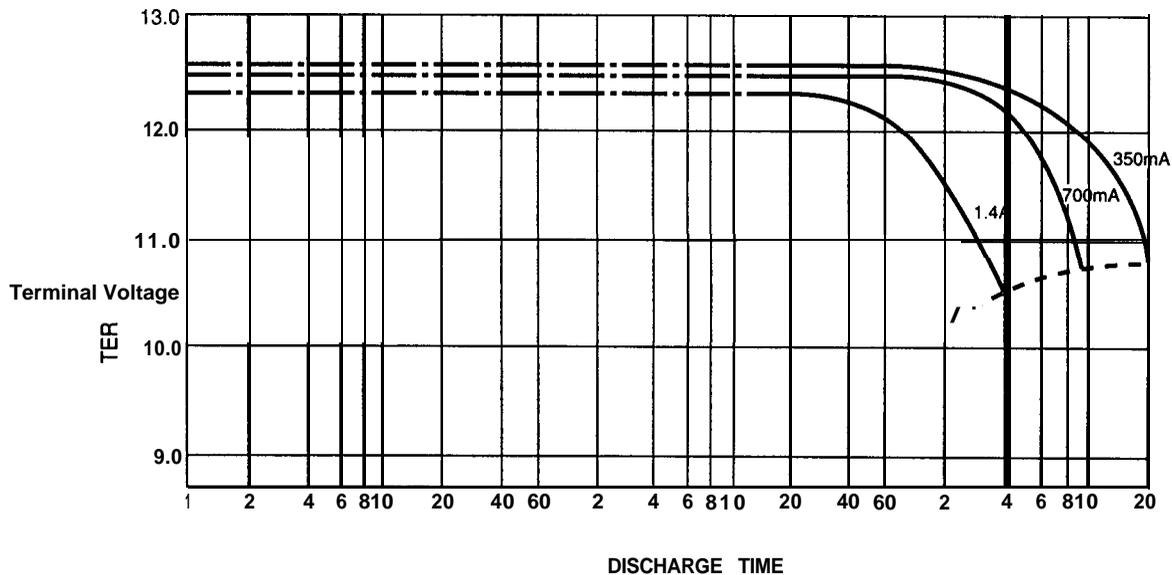
Typical Standby Battery Life

A good estimate of your system's standby battery life can be obtained by the following method:

1. Begin with the battery FULLY charged.
2. Connect an ammeter (set to a safe-about 2 ampere-range) in either leg of the battery harness, in series, with the proper polarity to read the current provided by the battery.
3. Unplug the system's power transformer from the outlet.
4. Read the current being drawn by the system.
5. Add to this current 20 ma for each Display Control Keypad, and 12 ma for each Control Keypad that are in the system. This will calculate the total standby current drain.
6. Use the current that is equal to (or greater than) yours, on the curve (Figure 2-6).
7. Read the time where your current line drops below a voltage of 9.8 volts. This is the amount of time the system should operate in the standby mode before the voltage causes it to call in a low power warning and initiate its Suspend Operation.
8. If the standby time is too short, you must add battery capacity. You can add another identical battery in parallel (plus terminal connected to plus, and minus terminal to minus) to double the capacity.

NOTE:

Two batteries take twice as much charge current—a two-battery system is not UL Listed. When using two batteries in parallel, use one-half of the measured current while referring to the chart.



CCU Main Board and Display Control Keypad Compatibility

Only the enhanced Display Control Keypad can be used with the enhanced CCU Main Board. The enhanced CCU Main Board and the enhanced Display Control Keypad provide expanded Listen-In/Talk-Back capabilities, described in *Appendix D Listen-In/Talk-Back*. Table 2-4a describes compatibility between the two different versions of the CCU Main Board and the two different Display Control Keypads.

You can identify the enhanced CCU Main Board by locating the sticker described in Figure 2-6a. You can identify the enhanced Display Control Keypad by locating the sticker described in Figure 2-6b.

Table 2-4a. CCU Main Board and Display Control Keypad Compatibility

CCU Main Board	Compatible Display Control Keypad
Model 8300 CMP1 <i>without</i> the sticker that is shown in Figure 2-6a	Model 8345 Comcode 10569 1539 SKU 00865
Model 8300 CMP1 <i>with</i> the sticker that is shown in Figure 2-6b	Model 8345 Comdode 106776164 SKU 36010

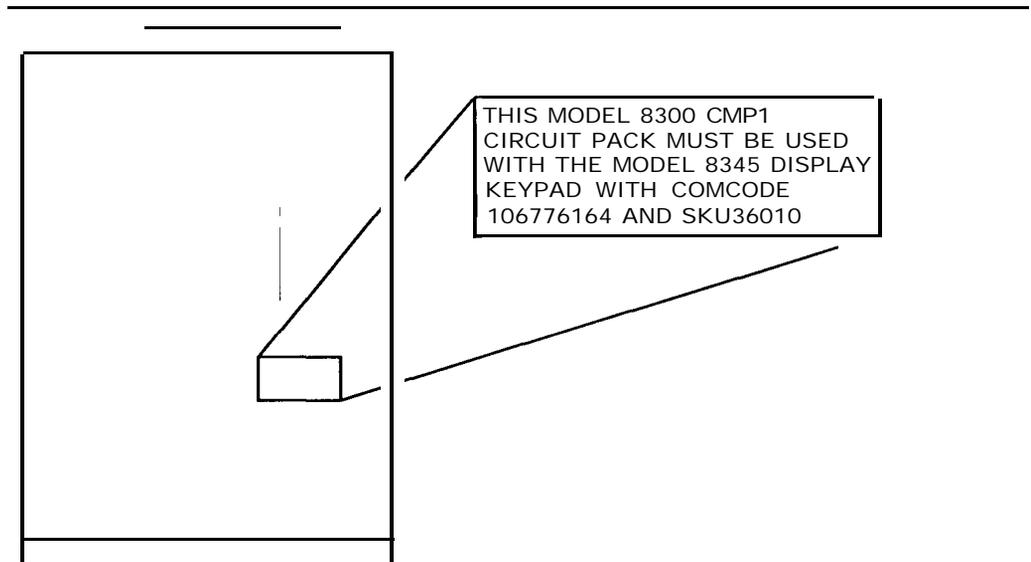


Figure 2-6a. CCU Main Board

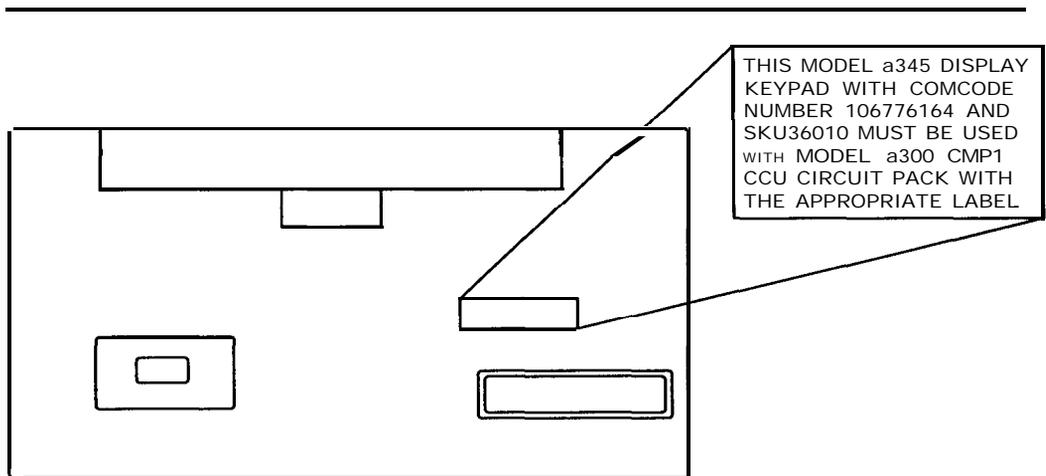


Figure 2-6b. Display Control Keypad

Installing Specific Devices

This portion of the manual deals directly with physical and electrical matters concerning the installation of the different devices-warnings, space requirements, physical orientation, setting switches, connecting wires, integrating the device into the system, and specific requirements affecting the various approval agencies.

You should have pulled the required wiring and verified that any wireless communication will operate without fault. You may have programmed the system before installation, or you may do it near the end of the installation process (before connecting phone line and sirens).

Figures 2-4 and 2-5 show all terminal strip connections within the cabinet, indicating where all external wiring connects.

If you connect all of the remote wiring to the system terminals before installing the main board, be very careful, since finding a wiring error is likely to be difficult. Always adhere to state and local codes, and meet any agency requirements for any required agency approvals.

Telephone Jack

Obtain and install an RJ31X (or RJ38X), or two of them for 2-line service, in an appropriate place before the *line reaches any telephones*, so that the system can seize the line when it needs to call the monitoring service.

Refer to Figures 2-4 and 2-5 for connector location (if two lines are used, the two-line switcher will be required-see page 2-1 7).

If the system is to be configured only for local alarm, and remote programming will never be used, phone connections may be ignored.

Communications Control Unit (CCU)

Model 8300 (order enclosure separately)

Enclosures:

- . Model 8310 - residential enclosure
- Model 8311 - commercial enclosure (required for commercial UL applications)

Description: Enclosure and electronics are the central wiring point, and brains, of the system.

Mount/Install: Consider the following factors when selecting a mounting location for the CCU.

1. Security of the CCU; since the CCU is the most important and vulnerable item of your system, put it where it cannot be seen or easily reached by a burglar breaking in.
2. Radio Frequency Interference factors (is the CCU close to radio or TV receivers).
3. Availability of phone and electrical connections.
4. Environmental factors:
 - Temperature limits 40 to 120 F
 - Vibration-free surface
 - Not subject to condensing, caustic, or dirt-laden atmosphere.
5. If you will use wireless sensors, be sure to include the wireless considerations mentioned in Appendix A.

The residential cabinet box may be surface- or flush- mounted (will not fit between 16" studs). An optional cabinet is required for commercial UL applications; it cannot be fully flush mounted since the door extends around the side of the cabinet 1/2 inch.

For UL Listing, commercial enclosures must also:

1. Have the unused knockouts filled with conduit blanks or "hole seals" (available where conduit is purchased).

2. Have the antenna knockout (if unused) plugged with appropriate sized conduit blanks (Hoffman hole seals: A-S100 for 1" holes, A-SO75 for 3/4" antenna hole).
3. Be secured with six 2" 8-32 screws, provided (four through the side, one each through the top and bottom, in the threaded holes provided) in the panel door to slow any attacker.
4. Use conduit for exposed wiring.

Mount/Install: Mount the enclosure first, without the main board or options. Then mount the Main Board in the enclosure:

NOTE:

We advise that you wait until all wires are run and connected to the terminal strips before you mount the CCU Main Board.

1. Place the 7/8" long spacers on the studs as shown in Figure 2-7. If neither of the expansion strips is used, you will install all 8 spacers; if you use the keypad expansion strip don't use the lower left spacer, if you use the ADCOM (adjunct communicator) don't use the lower right spacer.
2. The Main Board is not likely to be damaged by static electricity during handling, but this step will help reduce any possibility of damage. To pick the board up, first touch the table that it is on; then use the other hand to hold one side of the board; finally, pick the board up with both hands to avoid mechanical damage.
3. When mounting the board in the enclosure, first touch an elbow or wrist to the enclosure to "trickle off" any voltage difference.

NOTE:

The board is quite large. Because of its size, it may be damaged by flexing or *bending*. Align the main board over the pins and the studs. Do not flex it unnecessarily while pressing it onto the pins; instead, position it carefully and press firmly and evenly on the area of the board

directly above the pins. *Be careful* since the pins may extend slightly through the connectors; you could stick yourself on the tips of these pins. Since the board is large, slide it onto the pins in "sections." First ease the top of the board 1/4" onto the pins, then the middle, then the bottom. Continue to carefully work the board all of the way onto the pins without putting unnecessary stress on it.

4. Install seven 8-32 nuts at the edges of the board and on the heat sink, and the *plastic* nut on the lower right corner of the board. Install six 6-32 nuts in the central area of the board as shown in Figure 2-7.

A WARNING:

Use the plastic nut as noted, to protect against electrical damage.

A WARNING:

It is critical that the board's heat sink be properly bolted to the enclosure, or the electronics may be destroyed.

Settings/Connections: The main board does not require special switch settings. The OFF/ON switch is shown in Figures 2-4 and 2-5. Refer to Figures 2-4 and 2-5 for connection information.

Data: Current ratings, see "Battery and Power Supply Considerations" on page 2-9. Ringer Equivalence for phone connections, 1.4.

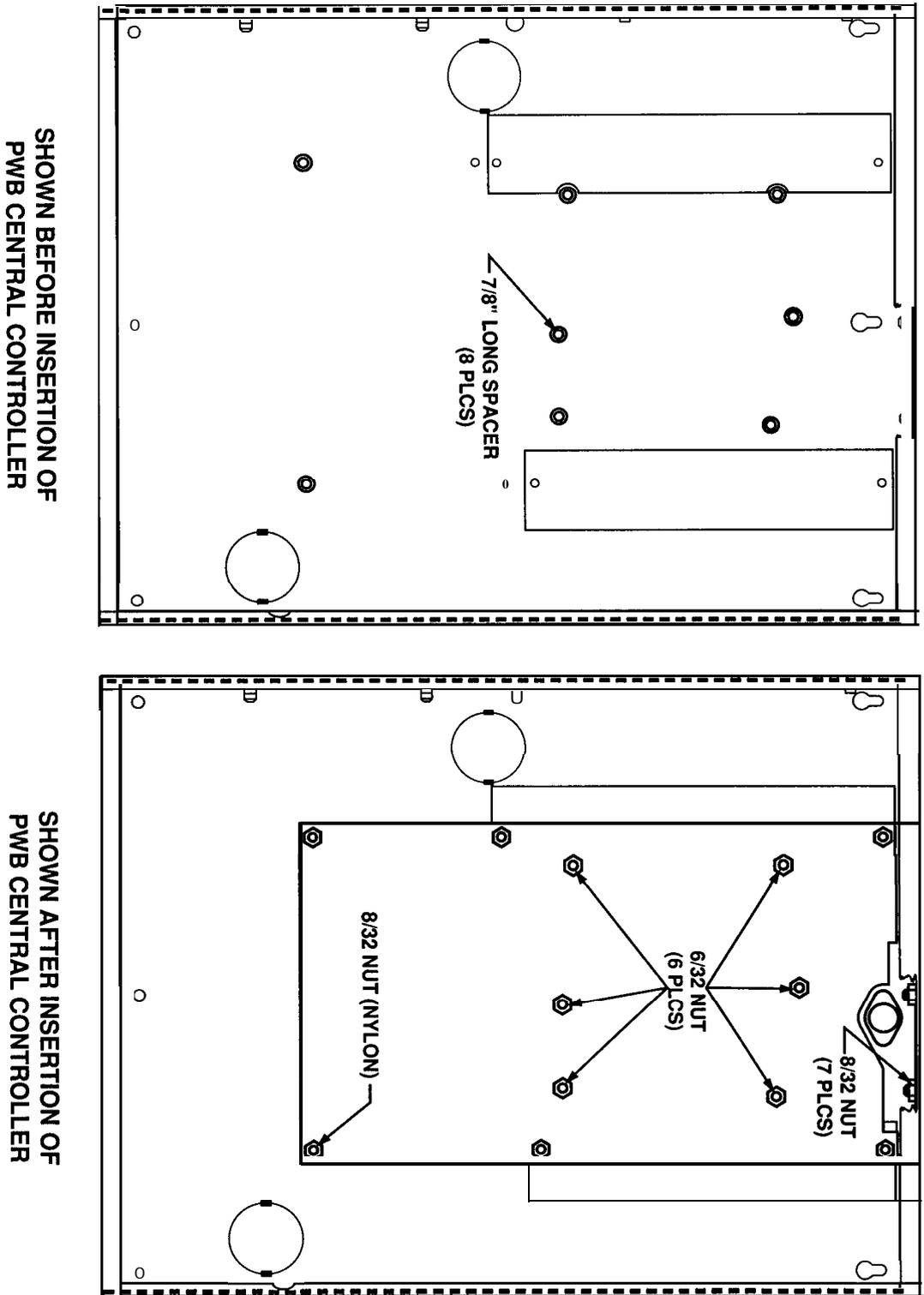


Figure 2-7 Mounting the PWB Central Controller

CCU Main Board and Display Control Keypad Compatibility

Only the enhanced Display Control Keypad can be used with the enhanced CCU Main Board. The enhanced CCU Main Board and the enhanced Display Control Keypad provide expanded Listen-In/Talk-Back capabilities, described in *Appendix D Listen-In/Talk-Back*. Table 2-4a describes compatibility between the two different versions of the CCU Main Board and the two different Display Control Keypads.

You can identify the enhanced CCU Main Board by locating the sticker described in Figure 2-6a. You can identify the enhanced Display Control Keypad by locating the sticker described in Figure 2-6b.

Table 2-4a. CCU Main Board and Display Control Keypad Compatibility

CCU Main Board	Compatible Display Control Keypad
Model 8300 CMP1 <i>without</i> the sticker that is shown in Figure 2-6a	Model 8345 Comcode 105691539 SKU 00865
Model 8300 CMP1 <i>with</i> the sticker that is shown in Figure 2-6b	Model 8345 Comdode 106776164 SKU 36010

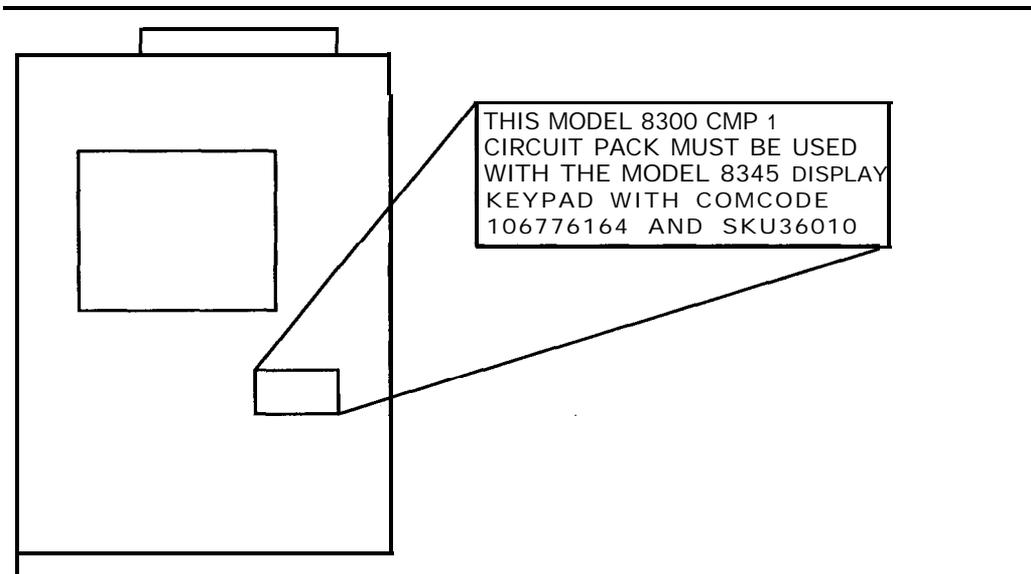


Figure 2-6a. CCU Main Board

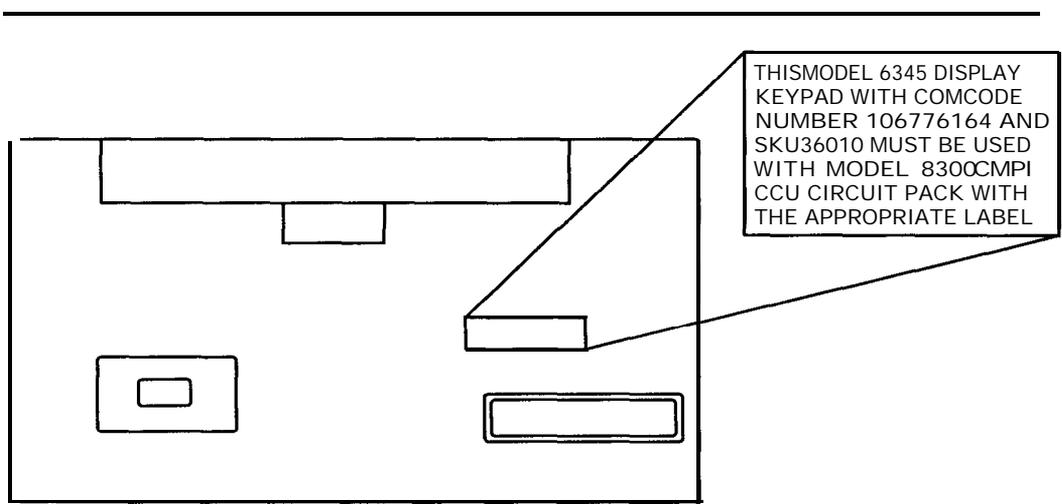


Figure 2-6b. Display Control Keypad

Other CCU Devices

CCU POWER TRANSFORMER

Model 8305 (Ault Inc. Pt# 354-6018-001)

Description: The standard in-line power transformer supplies up to 60 volt-amperes of power, at 18 volts.

Mount/Install: The standard transformer can be plugged into a normal (polarized) 117 VAC electrical outlet and mounted horizontally or vertically. Place or mount the transformer on the floor (required for UL), where it will not be damaged or wet, and away from the antenna if the wireless module is used. DO NOT install the transformer inside (or on top of) the CCU enclosure, since it carries high voltage. UL requires that the power plug be secured to the outlet plate with the enclosed plug-tie (Panduit Sta-Strap@ #SSC2S-SI O-C):

1. Secure the tie to the center of the outlet plate with the plate's screw.
2. Plug in the transformer.
3. Loop the tie strap around the cord as close to the plug as is practical (1-1/2 or 2") and pull the tip back through, as with any cable tie. Pull tight and cut off any excess.

Settings/Connections: Connect the power cord (22 gauge, 15 feet maximum) from the transformer to the transformer as shown in Figures 2-4 and 2-5, before you plug in the transformer.

NOTE:

If a Wireless Module is used, special wiring steps must be taken; refer to the wireless module.

Data: 117 VAC input, 18 VAC output at 60 volt-amperes load.

CCU Power Storage Batteries

Obtain battery (YUASA NP7-12) locally.

Description: A single 7 ampere-hour battery is considered the minimum standard; for non-UL installations, a second battery can be wired in parallel for added capacity.

Mount/Install: Position the battery(ies) in the bottom of the CCU enclosure.

Settings/Connections: Connect the battery to the CCU terminal leads (+ to Red, -to Black) carefully; incorrect polarity can cause rapid discharge and possible damage.

Data: Rated at 7 ampere-hours.

Dual Battery Harness

Model 8315

Description: Allows you to connect a second NP7-12 battery in parallel with the first, to double the standby and alarm time with a battery configuration that will fit into the enclosure (for non-UL applications). Remember that recharge time may also double after running the batteries down.

Mount/Install: Unplug the + (red) lead from the current battery, and plug in the (red) multi-pronged end of the parallel harness; then replug the original lead into the same multi-pronged end. Plug the other end of the (red) harness into the + (red) terminal of the second battery. Repeat the operation with the - (black) connectors.

Ground Start Relay

Optional. Purchase Clare MSS21A12, 14 pin relay from electronics supply store (such as Newark Electronics, outlets in most major cities).

Description: The ground start relay is generally used to obtain a dial tone in private branch exchange phone systems. It does this by momentarily grounding one side of the phone line. Not for use in UL Listed applications.

Mount/Install: Mount the relay on the main circuit board socket, as shown in Figure 2-8.

Settings/Connections: The ground start relay is enabled or disabled by installer programming Fn#216.

Data: 12V, mercury relay, 30 mA current draw.

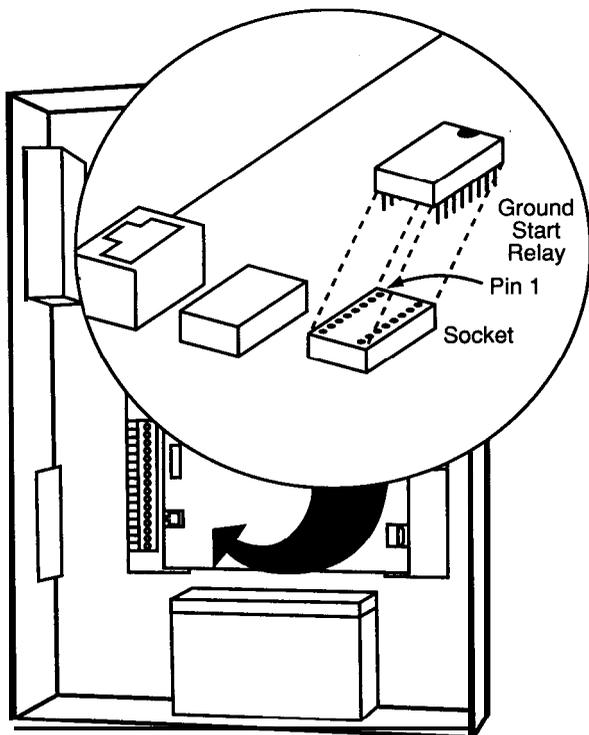


Figure 2-8 Ground Start Relay

Wireless Module, Antenna and Remote Antenna Option

See Appendix A.

CCU Tamper Switches

(Ademco #19 or Sentrol 3025T-90-1)

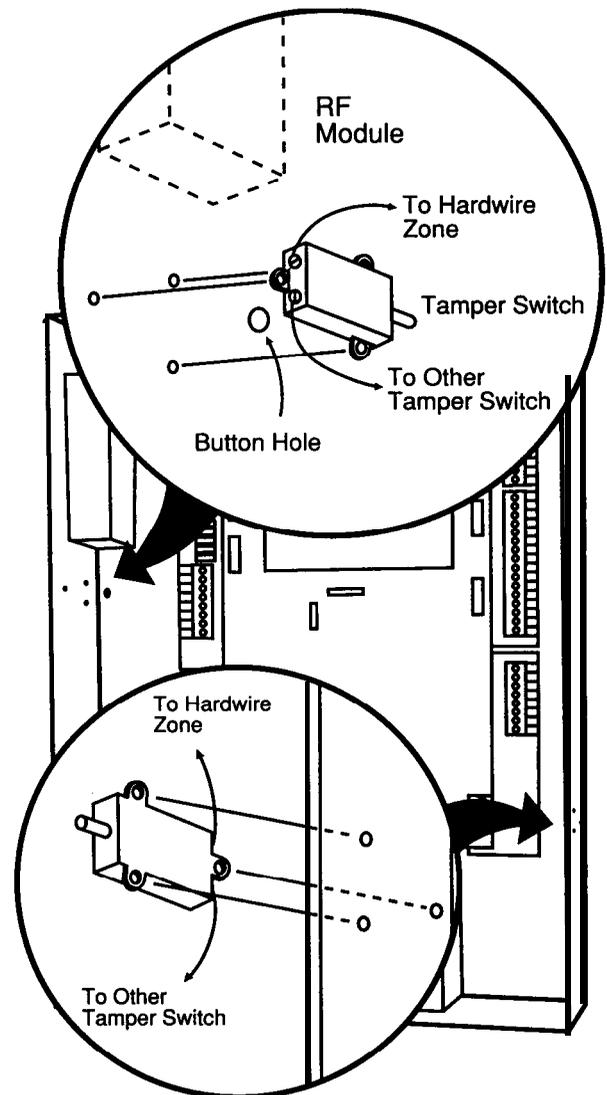


Figure 2-9 Tamper Switches

One U.L. listed tamper switch is required in a commercial burglary installation for protection of the CCU, and is provided with the commercial enclosure to protect the enclosure's door. They are optional for other installations, and must be obtained separately for residential installations.

Description: Two switches may be installed to sense when either the front door of the enclosure has been opened, or the unit has been pulled off the wall.

Mount/Install: Figure 2-9 shows installation. Refer to the figure and mount the back plate and front cover tamper switches as shown. For closed loop, wire the switches in series and connect to the selected hardwired zone. Program to suit the application requirements (note UL programming requirements for Tamper, at the end of Chapter 3).

Settings/Connections: The series loop will be connected to the zone (1-16) you select in your programming of the system.

Data: n/a

Two-Line Switcher

Model 8321

Description: If the installation has 2 telephone lines, the Switcher will alternate between lines upon call-out failure. Switchable phone block monitoring is available and goes to hardwired Zone #10, monitoring continuity between the main board and the RJ-31X jacks (available from most electronics supply houses, or from AT&T as "635B-49, Connecting Block").

NOTE:

Not for UL installations. This monitors only the "in-house" continuity, not telephone line outside, and only the lines between the Switcher and the RJ-jacks.

Mount/Install: Figure 2-10 shows installation; Figures 2-4 and 2-5 show the block monitoring On/Off jumper (for use if phone lines are vulnerable between the CCU and the RJ- jacks).

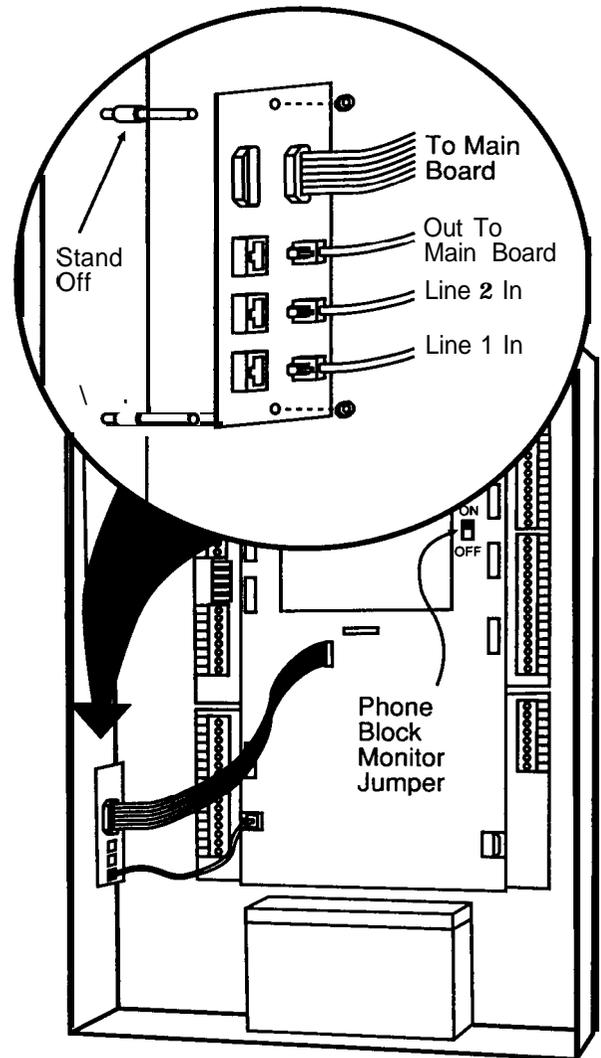


Figure 2-10 Two-Line Switcher

Settings/Connections: Plug the two lines from the RJ-31X (or RJ-38X) jacks into the switcher (Note that these are 8-wire, not the common 4-wire; if you wire this with two 4-wire lines, you must have one monitor wire in each line, see Figure 2-11). The connector marked "line 1" will dial out first. The third line from the switcher goes to the main board (you can use 8" AT&T 8-wire cord D8W-50 for this). Connect the cable from the switcher board to the main board as shown.

If block monitoring is used (not for UL installations), jumper between lines 2 and 7 of each RJ-31X jack (an RJ-38X already has the jumper).

Set the two pair of jumpers on the board as follows. Either or both pair may be set to ON.

==JP712 & JP702 to ON, a user on line 2 will be switched to line 1 if line 2 is seized.

==JP713 & JP701 to ON, a user on line 1 will be switched to line 2 if line 1 is seized.

NOTE:

Switching from line 1 to line 2 will not maintain that user's connection; however, it will avoid leaving a user with a dead phone. The user will hear a dial tone or be joined to the existing conversation, if line 2 is already in use.

Phone Block Monitoring Note: (Not for use in UL systems,) If the line continuity monitoring jumper is set to ON, phone line continuity goes to Hardwired Zone 10 (Interior Tamper). If Zone 10 is not used for other tampers as well, you must install a 1000 ohm EOL resistor inside the enclosure across the Zone 10 terminals, This continuity supervision is different from the software (line voltage) supervision Fn#218, which will only report a phone Trouble after 12 consecutive hourly checks without sensing phone line voltage.

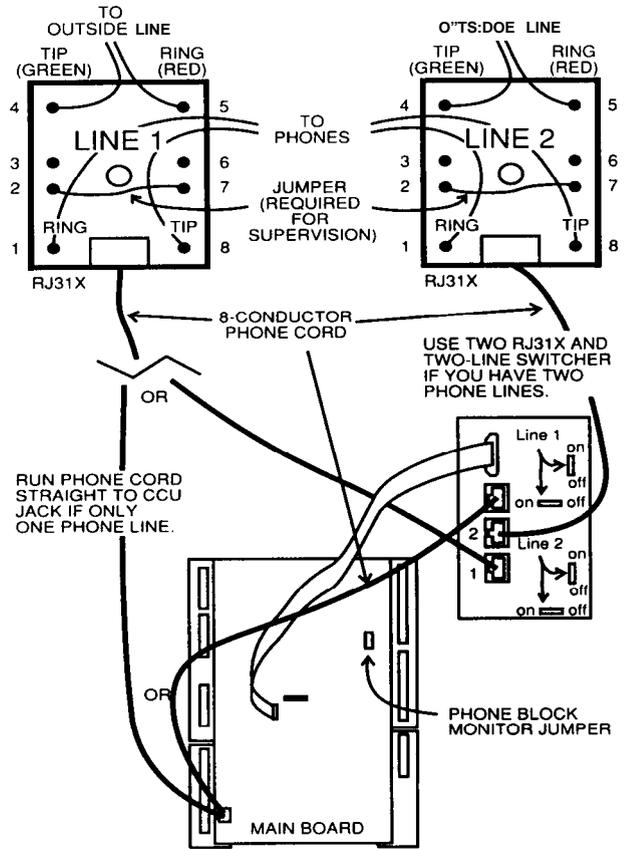


Figure 2-11 Supervision with RJ-31X

Keypad Expansion Module

Model 8320

Description: Only two keypads can be connected to the standard terminal strip (limit, 2 wires per terminal). This expansion module allows the addition of up to six more keypads.

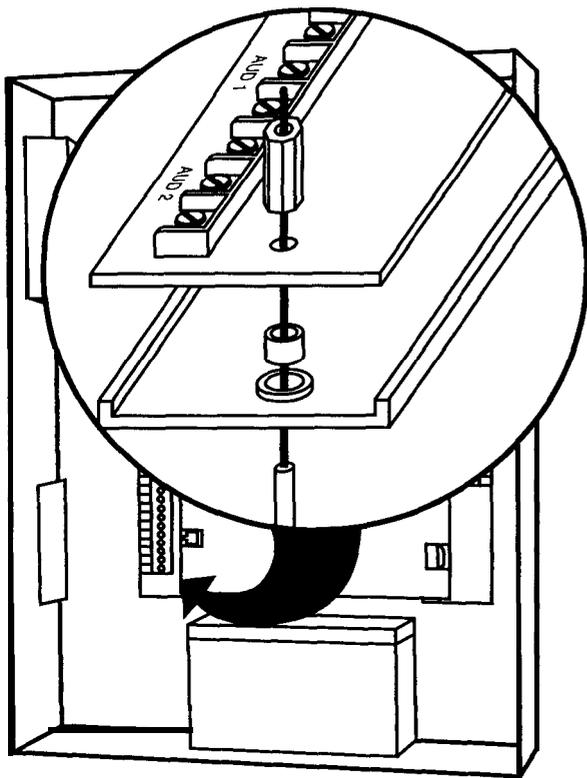


Figure 2-12 Expansion Module

Mount/Install: This must be done before the Main board is mounted. Refer to Figure 2-12. Notice that the base strip and the circuit board have the mounting holes off center, creating a “wide” side and a “narrow” side. Place the base strip over the studs on the lower left side of the CCU, with the “wide” side out. Then place the small stand-offs into the space between base strip and stud. This stand-off is necessary to provide good electrical ground to the board. Finally place the circuit board on the studs, also with the “wide” side (terminal strip) facing out. The edge of the base strip should support the edge of the circuit board. Tighten the nuts onto the studs to retain the board without coming loose, but not tight enough to damage the board.

Settings/Connections: Refer to Figures 2-4 and 2-5 for connection of wires to keypads. Do not

connect more than 2 wires to any terminal. Refer to the keypad text for wire-length limits.

Data: See the previous section, “Battery and Power Supply Considerations,” for power usage.

Relay Output

Provided standard

Description: Two relays are provided on the main board; you can select both the type of response and the triggering event. If additional interruptible power is needed for smoke detectors (for non-UL applications only), a relay can be used with the Aux power to provide the interrupt.

Mount/Install: n/a

Settings/Connections: Two sets of contacts are available from Relay #1 and from Relay #2, a set that is open in the unalarmed condition and one that is closed. Relay connecting points are shown in Figures 2-4 and 2-5.

Data: The maximum allowable current, 1 .0 Amperes @ 30 volts, DC.

Siren Output

Provided Standard

Description: These two outputs provide power to drive sirens or horns as specified by the installer programming. Note that the output may be steady or cadenced, according to the programming. Length of alarm output is also determined by system programming.

Settings/Connections: The output settings are selected by the programming. Connections are as shown in Figures 2-4 and 2-5.

Mount/Install: The siren’s current rating at 75 volts must be considered for maximum ratings.

Data: 9-15 volts DC, 1 .0 Ampere each driver, with a total maximum of 2.0 Amperes (total maximum is 1 .0 Ampere for UL installations). See the

configuration table near the beginning of Chapter 2.

Adjunct Communicator Module

Model 8322

Description: This option provides 8 different output lines, driven by the system program to indicate alarms. It is active even if the system is programmed for “Local” operation in Fn#113 (see Chapter 3) and selected as a backup or parallel reporting path by Fn#115. This output can be used to activate an additional (or primary) output device, such as another dialer or a radio transmitter.

Mount/Install: This must be done before the Main board is mounted. Refer to Figure 2-13. Notice that the base strip and the circuit board have the mounting holes off center, creating a “wide” side and a “narrow” side. Place the base strip over the studs on the lower right side of the CCU, with the “wide” side facing out. Then place the small stand-offs into the space between base strip and stud. This stand-off is necessary to provide good electrical ground to the board. Finally place the circuit board on the studs, also with the “wide” side (terminal strip) facing out. The edge of the base strip should support the edge of the circuit board. Tighten the nuts onto the studs to retain the board without coming loose, but not tight enough to damage the board.

Settings/Connections: Terminal connections COM1 through COM8 correspond to 8-channel reporting messages indicated for programming Fn#235 in Chapter 3 (Programming), and GND is the signal ground:

- . COM1 = Perimeter Intrusion
- COM2 = Interior Intrusion
- COM3 = Silent Panic

- COM4 = Audible Panic
- COM5 = Fire
- COM6 = Emergency
- COM7 = Environmental, Aux, Trouble Category
- COM8 = System Trouble

Data: The output voltage is 6-15 VDC at 25 ma per channel for 10 minutes or until the condition is cancelled. (Trouble and Silent Panic do not cancel.)

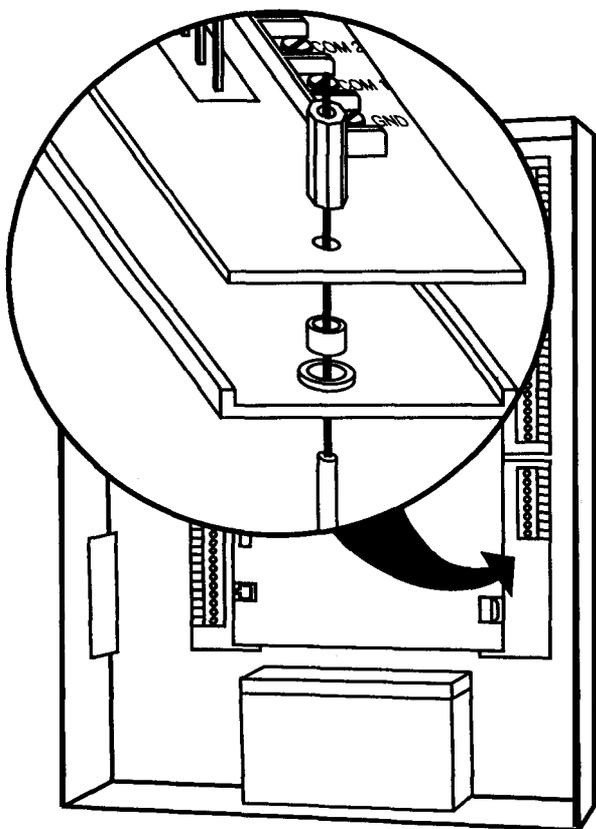


Figure 2-13 Adjunct Communicator Module

Display Control Keypad

Model 8345

Description: This keypad enables the user to arm and disarm, and program the system; provides system information to user via LED's and display; and can provide speakerphone and intercom service (two required for intercom).

NOTES:

Phone and intercom not recommended for noisy locations. Avoid installing these keypads in the same room, or facing each other within 20 feet; feedback can occur between active keypads in the intercom or phone mode.

Mount/Install: Figure 2-14 shows how to surface mount the keypad. Use this device only where the temperature stays within the limits of 40 to 120°F. Position the keypad where it is accessible and easily read, but do not put it where it may be damaged by swinging doors, furniture, or the movement of children through the traffic pattern. Avoid placing it where it can be seen from outside the premises. You can snap the keypad straight onto or off the mounting plate, and can tilt it upwards almost 90 degrees, for access to the back. Do not use screws with large heads on the mounting plate, or the keypad may not lie flat. Remember that the EMERGENCY keys are programmable in Security System 8300. If your system has a special function assigned to these keys, affix the correct special sticker (from the set of peel-off labels, provided with the keypad) between the two keys.

Settings and Connections: Figures 2-4 and 2-5 show keypad wiring at the CCU. Refer to "Wiring Data," step 5, page 2-3, for wire information. A wired connector is provided to pigtail into the wire you pulled. Figure 2-15 shows how to set the switches and connect the wires on the back of the keypads. Remember to set the I.D. number so that the CCU can properly identify each keypad (especially important if the "listen-in" operation option is chosen). You or the User can set the volume control to minimum to eliminate certain sounds and set dip switch #4 to OFF (Figure 2-1 5) to eliminate certain sounds (leave dip switch #4 ON in UL applications). Table 2-6 shows the sounds and which control affects them.

CCU Main Board and Display Control Keypad Compatibility

Only the enhanced Display Control Keypad can be used with the enhanced CCU Main Board. The enhanced CCU Main Board and the enhanced Display Control Keypad provide expanded Listen-In/Talk-Back capabilities, described in Appendix D Listen-In/Talk-Back. Table 2-4b describes compatibility between the two different versions of the CCU Main Board and the two different Display Control Keypads.

You can identify the enhanced CCU Main Board by locating the sticker described in Figure 2-13a. You can identify the enhanced Display Control Keypad by locating the sticker described in Figure 2-13b.

Table 2-4b. CCU Main Board and Display Control Keypad Compatibility

CCU Main Board	Compatible Display Control Keypad
Model 8300 CMP1 without the sticker that is shown in Figure 2-1 3a	Model 8345 Comcode 105691539 SKU 00865
Model 8300 CMP1 <i>with</i> the sticker that is shown in Figure 2-1 3b	Model 8345 Comdode 106776164 SKU 36010

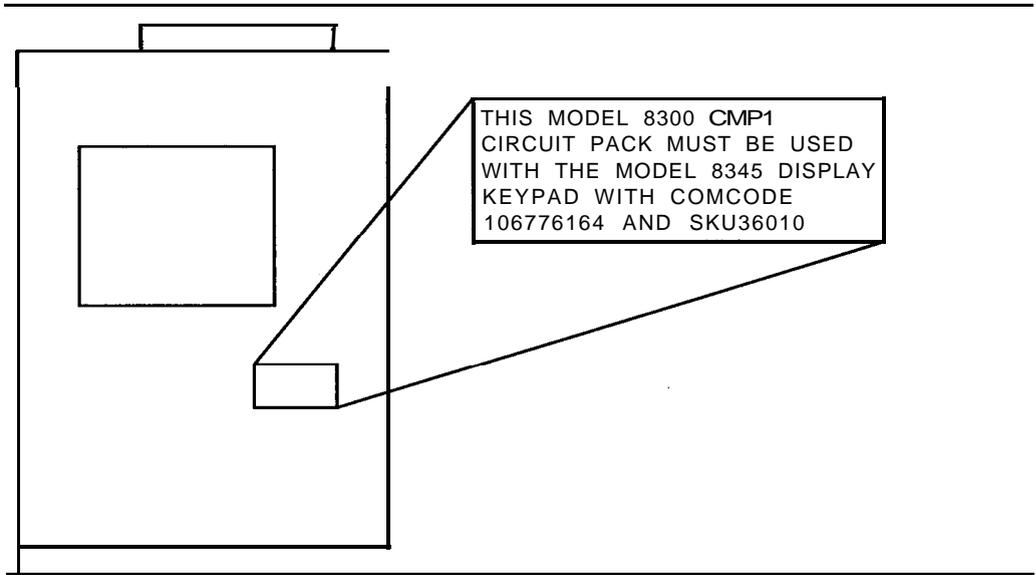


Figure 2-13a. CCU Main Board

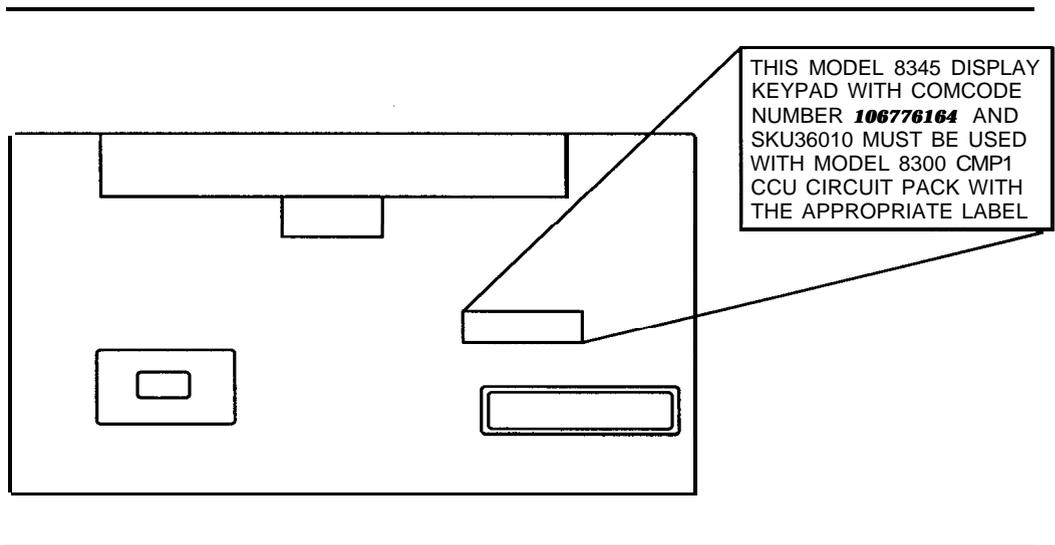


Figure 2-13b. Display Control Keypad

Table 2-6 How To Eliminate Sounds

Sound	Can be eliminated by:
Phone dialtone	Volume
Phone ring	Volume
Intercom beep	Volume or Sw4 (Off)
Chime	Volume* or Sw4 (Off)
Tone	Volume* or Sw4 (Off)
Exit beeps	Volume* or Sw4 (Off)
Entry beeps	SW4 (Off)
Trouble	SW4 (Off)

* Includes "Chime" control on Control keypads. Do not use Sw4 in UL installations. Use the plug (provided) for UL installations to fill the dip switch opening; press the plug in until it is below the surface of the keypad cover.

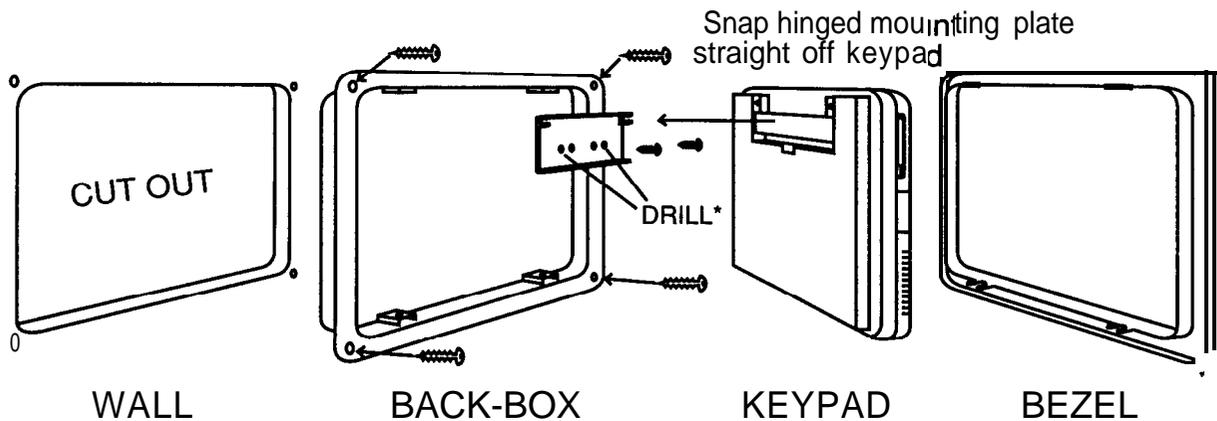
NOTE:

Reversing the DAT1 and DAT2 wires will cause all keypads in the system to *malfunction*. Reversing the power wires will damage the keypad.

Note the guide channels on the back, for running the wire to surface conduit at the top or bottom of the keypad. The keypads may also be semi-flush mounted into a wall (requires a kit, Model 8330) or set on a desk using the mounting bracket as a foot to tip the top forward.

The maximum run of 22 gauge wire (one keypad per wire run) is 300 feet to the Display Control keypad, and Control keypad (see Wiring Data step #5, near the beginning of this chapter). It is possible to make longer runs for the keypads (non-UL only). Call the 800- number for assistance.

Data: Power requirements are 9-15VDC, nominal = 70ma (50ma while CCU is on battery); alarm = 120 (100 on battery) ma plus 50 ma for the keypad's alarm sounder.



*Holes match with standard electrical box.

Figure 2-14 Keypad Mounting

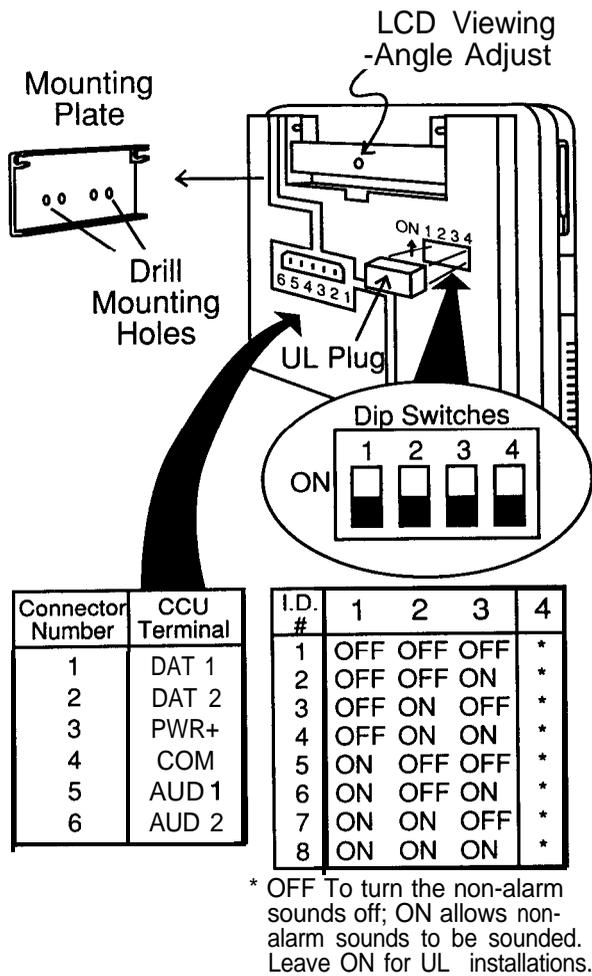


Figure 2-15 Keypad Settings and Connections

Control Keypad

Model 8340

Description: This keypad provides the ability to set Level of Protection, enter and sound alarms, and gives LED status indication.

Mount/Install: Mounts the same as the Display Control keypad.

Settings/Connections: Refer to Figure 2-15 for switches. Use the dip switches to set the proper number for the keypad so that it will be correctly

identified by the CCU. Set the remaining switch (SW4), if desired, and the “Chime” control switch down to cancel sounds listed in the table at the Display Control Keypad on page 2-21. Wiring is the same as the Display Control keypad, except that wires 5 and 6 (AUD1 and AUD2) are not required (though it is probably best to run them, in case of future upgrade). Desired maximum wire run is 300 feet. Like the Display keypad, this comes with peel-off labels for use with the EMERGENCY keys.

Data: Power requirements are 9-1 5VDC; current is nominal = 50ma (38ma on battery); Alarm condition 56ma (44ma) including the alarm sounder.

Keypad Desk Cord

Model 8331

Description: This 7-foot cable allows the keypad to be used as a desk unit without exposing wire splices, as would be done with the normal (12-inch) connector that is provided with the keypad. May also be used for surface mounting applications where cord will be run along the surface to a junction. Not for use with UL Listed systems.

Mount/Install: The cable has a polarized plug for the keypad at one end, and tinned leads at the other.

Settings/Connections: The wires are color coded, with blue corresponding to position 1 on the keypad, and yellow corresponding to position 6.

Keyswitch

Obtain locally, ADEMCO 9789 with tamper switch #112 (closed loop) or #113 (open loop); or Alarm Control Products RP-4 (no tamper switch), Locks are 2174-70 (flat key), 4073-70 (round key), 5073-70 (pick resistant).

Description: The keyswitch allows the user to cause a momentary switch closure to toggle (switch) the system’s Level of Protection between OFF (silences an Alarm) and another state (se-

lected during programming). The CCU provides drive power for two LED's that correspond to the red and green ones on the keypads, and operate in the same manner.

Mount/Install: Refer to the instruction sheet supplied with the keyswitch for mounting.

Setting and Connections: See Figures 2-4 and 2-5 and Figure 2-16. The actual switch wiring is done to a hardwired zone (1-16) that is programmed as keyswitch. Additional wiring to the Ready (green) and Arming (red) LED's is connected at the left CCU terminal strip, with a common ground between them.

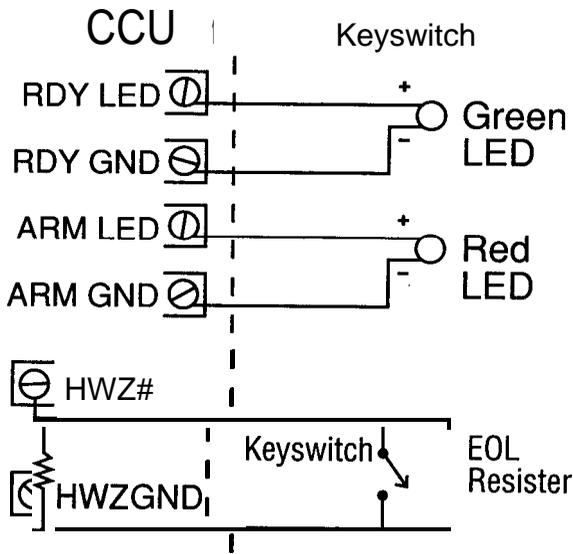


Figure 2-16 Open Loop Keyswitch

NOTE:

For non-UL installations only, you may short around the two resistors in the keyswitch in order to make the LED's brighter.

X-10 Power Line Interface

Obtain X-10 devices locally.

Description: An output is provided which will supply information to the X-10 interface which will, in turn, switch X-10 control devices as dictated by programming.

NOTE:

X-10 devices are not to be used as primary indication devices; use as a secondary device only. The operation of the X-10 interface has not been investigated by UL.

Mount/Install: The X-10 Interface is plugged into a wall outlet socket. Connection between it and the CCU is via a normal 4-conductor telephone cable with standard telephone jacks. Figures 2-4 and 2-5 show the X-10 connection on the left terminal strip near the OFF/ON switch.

Settings/Connection: Set all X-10 units that are being used with the security system to the same house code, one that is different from any others being used on the same premises. Set the control devices ID codes to 1 through 8 to match the 8 triggers listed here (and in Fn#741).

- 1 Intrusion, Interior Tamper, Day Zone, Audible Panic
- 2 Silent Panic
- 3 Fire
- 4 Emergency
- 5 Environmental
- 6 Trouble
- 7 Auxiliary 1
- 8 Auxiliary 2

Hardwired Smoke Detectors

Smoke detectors requiring power interruption for reset after an alarm can be easily enough powered using the following procedures.

Installation: See the installation instructions enclosed with the detector for installation considerations.

Basic Wiring: Connect low powered devices (total of 75mA maximum at 15VDC in the alarm condition) directly to the INT PWR terminal and the GND next to it. This method is required for UL installations. Power from these terminals is turned OFF for about 5 seconds at each system reset (to the OFF Level of Protection); the sensor supervision is interrupted temporarily to facilitate this without causing a Trouble.

NOTE:

Remember to use the End of Line Relay (power supervision)-or else the CCU won't know if the power lines are tampered.

Optional Wiring: A logical method for handling higher power requirements is to use one of the CCU's built-in relays (R1 or R2, on the left terminal board) to switch power from the AUX power (located just above the relay connections). See Figure 2-1 7. Program the duration selection (Fn# 731 or 741) for these relays to "momentary" (about 5 seconds) to allow the sensors to reset. Set the relay to trigger on disarming (Fn#733 or 736, the second character, 0100 0000; and Fn#732 or 735 to all O's).

A second method is to use the interruptible 75 mA supply to power an external relay, controlling either the AUX power or power from another source.

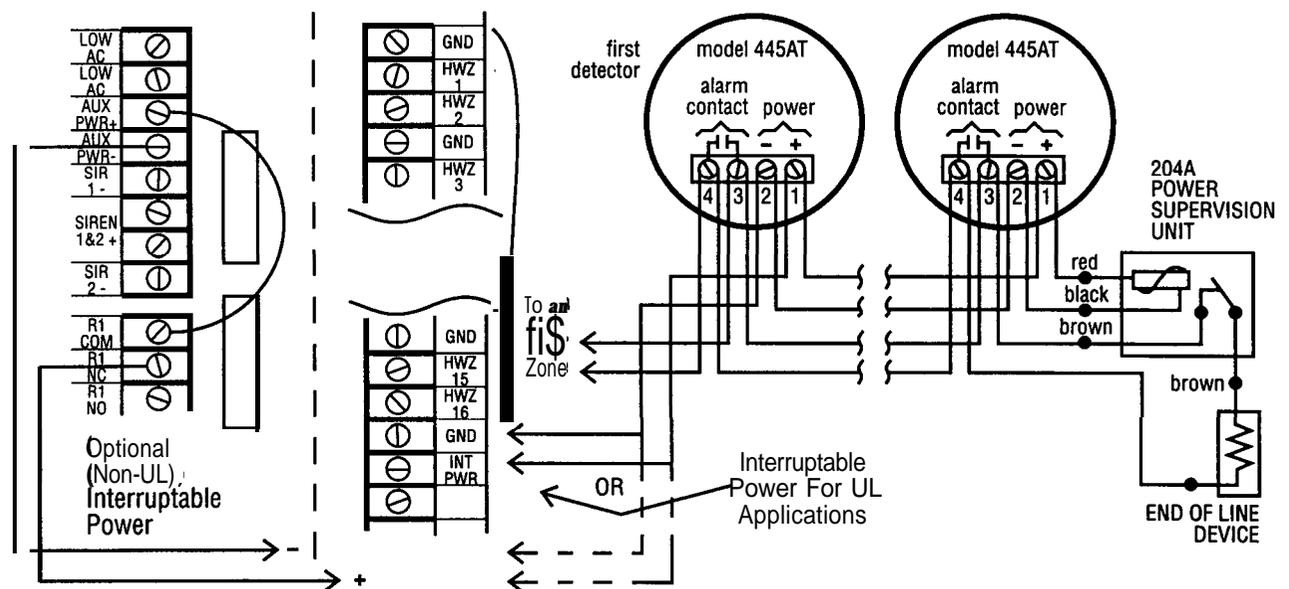


Figure 2-17 Hardwired Smoke Detectors

U.L. Alarm Bell

This wiring is required for Commercial burglar installations. Double strap grounding is required as shown in Figure 2-18.

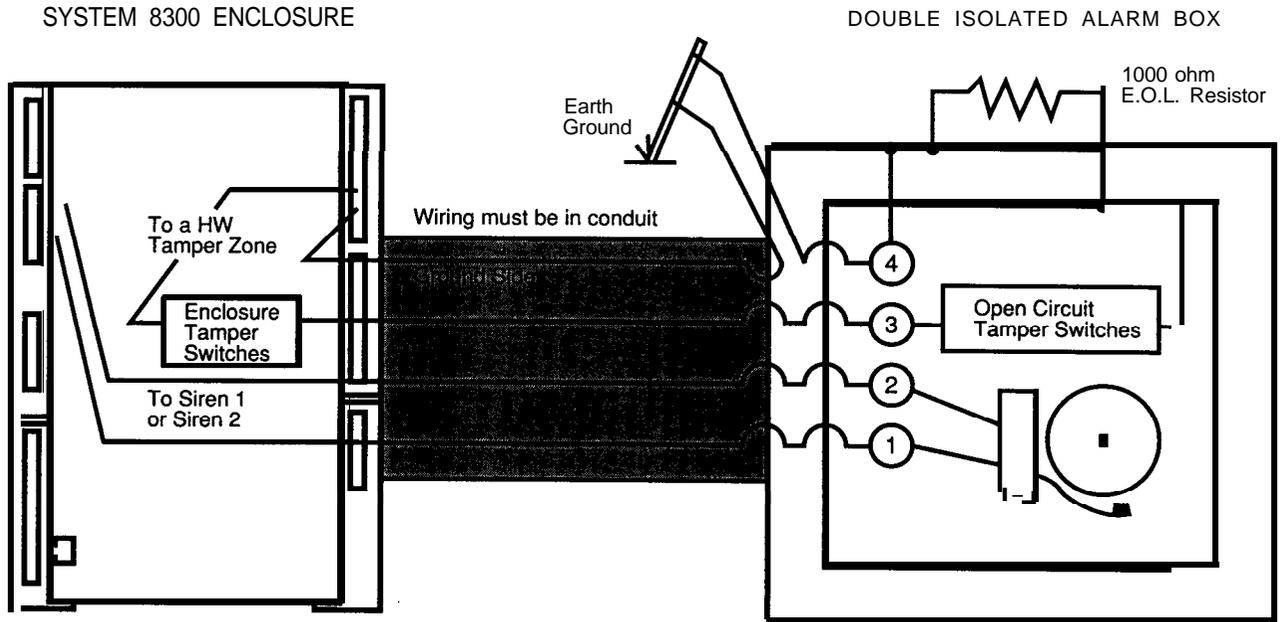


Figure 2-18 UL Bell Wiring

Introduction

There are a great number of instructions that define how the Security System 8300 operates and responds to its different sensors. They are contained in the CCU's programs

The Programming List in this section of the manual contains all of the commands that you can use to control the operation for each specific installation. You can change as many, or as few, of these settings as you need. For those that you don't change, the system will use the default factory settings.

Those default factory settings were designed for typical situations, so that you wouldn't have to make many changes. They are shown in the List by underlining.

A UL Programming table at the end of Chapter 3 shows UL requirements for various program settings.

To change the programs from their default settings, you can use either of two methods. You can use the display keypad to select each Function Number you want to change, and make the

desired changes. Or you can use the optional program CCUBOSS to make, save, print, and restore complete settings with a PC, much faster than you can enter the commands using the keypad. With CCUBOSS you can even program the system remotely, using a computer and modem. Either method of programming requires the correct access code.

Be sure to check the default settings before you begin programming; by assigning sensor numbers thoughtfully and making notes of which defaults need changing, you can decrease the amount of time spent programming.

Programming Lists

To be most helpful, we have provided two Programming Lists. The "Long" Programming List shows each option (Function Number) and the possible selections that you can make for it. The list is "Long" because it has many discussions or explanations to help you get started. You can use it when programming either manually or with CCUBOSS.

The "Short" Programming List shows the same Function Numbers and selections, but with minimum help. Consider the Short List, at first, as a Table of Contents/Guide in finding things in the Long List. Then, after you have operated from the Long List for a while, the discussions will be unnecessary and you will do most of your programming from the Short List.

This is how the Lists are organized:

- 000 series: System Test Functions
 - 100 series: System Set-Up
 - 200 series: Communications, Modem and Dialer
 - 300 series: Reporting
 - 400 series: Category Response versus Level of Protection
 - 500 series: Sensor Selection
- NOTE:**
All sensors start as "non-active" (ignored). Use Function Number 519, after completing the installation, to make them "active" for the system to monitor them.
- 600 series: Bypassing Sensors
 - 700 series: System Outputs
 - 800 series: Users, Keypads

Manual Programming

First learn the User programming operations from the User's Manual, in order to proceed with the programming steps which follow.

Manual programming from the keyboard is straightforward, but it can be lengthy if much programming is to be done, and does require some understanding of what the keypad keys mean in different situations. Computerized programming via CCUBOSS is a faster and easier option.

NOTE:

Don't connect the phone line until programming is complete and system operation is okay. This will avoid nuisance calls to the monitoring service.

1. Enter the Dealer Programming Mode. (Instructions follow. You must be familiar with User programming before you begin the Dealer/Installer programming.) From the Status Menu, select Security; enter a # sign and the 6-digit dealer/installer code, (factory default is 999999) and the display will show "Enter Function."
2. Enter the desired Function Number on the keypad, then press the [SELECT] key. The display will show the Fn# information on the top line, and current or default settings on the second display line.
3. Input the desired numbers or letters as requested by the keypad display, if you wish to change the data on the display line.

Figure 3-1 shows how to enter "characters" (letters and numbers).

4. Making your way through the rather large group of commands (Function Numbers) is made much easier if you can visualize

Number Pad Keys

1	ABC 2	DEF 3
GHI 4	JKL 5	MNO 6
PRS 7	TUV a	WXY 9
*	0	#

Number Entry Mode: Press the appropriate keys to enter number.

NOTE: Star erases an entry, in case of a mistake.

Character Entry Mode: (Also used for HEX numbers) Press a number key, the center letter shown on that key appears. Use * and # keys to change letter forward or backward through alphabet. When done, simply start next letter by pressing another number key.

NOTES:

1. "0" (zero) makes a **space**.
2. For a number, press "1" first, then the number.
3. "1"+"#" (pound sign) make a **backspace**.
4. "1"+"*" (star sign) make an **apostrophe**.

Example: To enter the characters "QC3"

Press	Display Shows	
PRS 7	R_____	
*	Q_____	(Star backs up from "R" to "Q")
ABC 2	QB_____	
#	QC_____	(Pound changes from "B" forward to "C")
1	QC_____	(The "1" key says the next key is a number, not a character)
DEF 3	QC3_____	(Gives the number)

Figure 3-1 Entering Letters and Numbers

the Function Numbers as making up a large grid, with boxes that contain specific pieces of data. Look at Figure 3-2.

5. Figure 3-2 shows a portion of the Function Numbers (Fn#413 through 514) extracted from the long list (since the entire list would be too big to illustrate), and visualized as part of the grid.
 - Fn#413 is only one box wide, because you only need to fill it out once.

- Fn#511 and the other Fn#'s for the sensors have more boxes beside them, since you will need to fill out a box for each sensor. If the figure were larger, the last sensor box to the right would show number 112.

Once you have the concept of the grid in your mind, refer to Figure 3-3. It shows how you can press any of 5 keypad keys to move to the Fn# "box" where you wish to be.

412 DAY ACT --
413 NITE ACT --
4 14 AWAY ACT

The "Grid" extends up to Fn#011 1. Some parts of the grid extend to the right as far as sensor number 112, keypad 8, or user 15.

The grid extends down to the last Fn#.

511 SENSOR # 1	511 SENSOR # 2	511 SENSOR # 3	511 SENSOR # 4
512 SNSR DES 1	512 SNSR DES 2	512 SNSR DES 3	512 SNSR DES 4
513TYPE 1	513TYPE 2	513 TYPE 3	513 TYPE 4
515 LOOP TYP 1	515 LOOP TYP 2	515 LOOP TYP 3	515 LOOP TYP 4
516 LOOP SPD 1	516 LOOP SPD 2	516 LOOP SPD 3	516 LOOP SPD 4
517 SUPERVIS 1	517 SUPERVIS 2	517 SUPERVIS 3	517 SUPERVIS 4
518 ENTY DLY 1	518 ENTY DLY 2	518 ENTY DLY 3	518 ENTY DLY 4

Figure 3-2 Function Numbers Visualized as a "Grid" to Fill Out

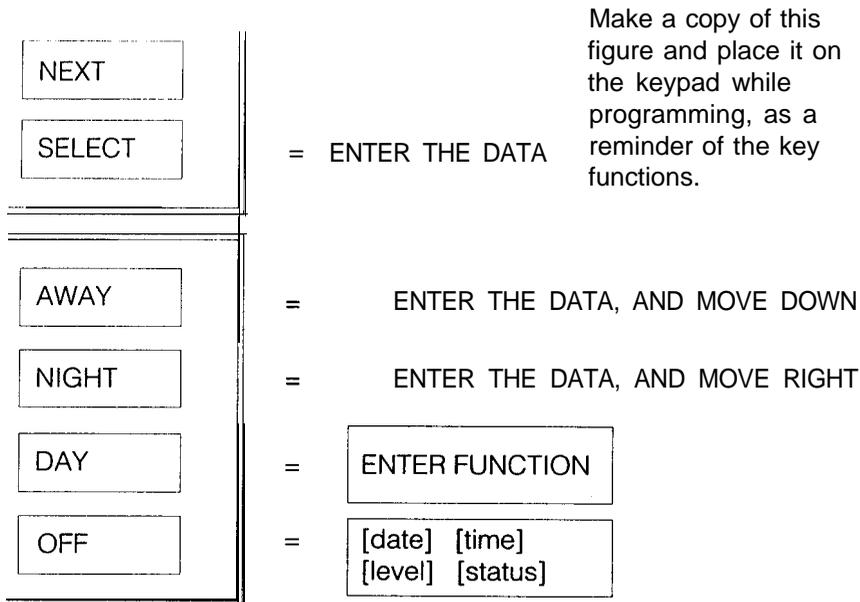


Figure 3-3 Keypad Button Functions

**Example:
Moving Through the Grid**

Refer to Figure 3-2 and 3-3 for this example, which shows how to move freely through the Function Number GRID, and tell the CCU what the system is like. Assume you are at the ENTER FUNCTION prompt (the beginning) and want to make a few changes in the sensor data. The changes are to the *Description (Fn#512)* for sensors 2 and 4; make sensor 4 a priority device, and then change the supervision status of sensor 707. Note in the example that we have underlined characters in the display to show when they change from the previous display. We have used **bold** characters for the characters you enter from the keypad.

NOTE:
When you go to a Function Number (Fn#512, a Point of Protection description, for example) the second display line will show the current/default contents of that Fn# ("sensor 12" for example). Entering your data will overwrite the existing data as soon as you press the SELECT button.

Display	Comments
<pre>ENTER FUNCTION 511</pre>	<p>***CHANGE DESCRIPTION FOR SENSOR #2 -ENTER FUNCTION asks where (which Fn#) you wish to go. You enter 511 because that lets you select which sensor number (2) to begin with. -Use SELECT to enter the data.</p>
[SELECT] = Enter Data	
<pre>511 SENSOR # 1 2</pre>	-Press 2 for sensor number 2.
[SELECT] = Enter Data	
<pre>511 2 ENTERED</pre>	<p>-The top line shows where you are (you have moved to sensor 2). The second line confirms that the previous data was entered successfully.-The AWAY key moves you "down" to Fn#512.</p>
[AWAY] = Down	
<pre>2512 SNSR DES KIDS BR 2</pre>	<p>Fn# 512 asks for sensor 2's description. Enter per Figure 3-1. Using the sensor number in the description helps in troubleshooting.</p>
[SELECT] = Enter Data	
<pre>2512 ENTERED</pre>	<p>-This screen shows the location and verifies that the data was entered.</p>
[NIGHT] = Sideways	
<pre>512 SNSR DES 3</pre>	<p>**CHANGE DESCRIPTION FOR SENSOR NUMBER 4 -NIGHT allows you to move "sideways" to the next sensor number. -The sensor number has changed.</p>
[NIGHT] = Sideways	
<pre>512 SNSR DES 4 FRONT INTRU 4</pre>	-Key in your description for sensor 4.
[SELECT] = Enter Data	
<pre>4512 ENTERED</pre>	-The display verifies it is entered
[AWAY] = Down	
<pre>513 TYPE 4</pre>	<p>***CHANGE SENSOR NUMBER 4 TO PRIORITY -Move "down" to Fn# 513. -Fn#513 asks which Type, but you want to skip past it to Fn#514.</p>
[AWAY] = Down	

Figure 3-4 Moving Through the Grid

Display	Comments
<pre>514 <u>P</u>RIO<u>R</u>ITY 4 1</pre>	<p>- It asks, "is sensor 4 a priority sensor." - "1" is always yes, "0" is no--for yes/no questions.</p>
<p>[SELECT] = Enter Data</p>	
<pre>514 4 ENTERED</pre>	<p>-The display verifies it is entered.</p>
<p>[DAY] = Goto Enter Fn#</p>	<p>***MAKE SENSOR NUMBER 107 SUPERVISED -The fastest way "sideways" this far (to sensor 107) is by going to Fn#511 and entering "107." -DAY takes you to "Enter Function."</p>
<pre>ENTER FUNCTION: 511</pre>	<p>-Enter 511 so you can choose a new sensor number.</p>
<p>[SELECT] = Enter Data</p>	
<pre>511 <u>S</u>NSR # 4 107</pre>	<p>-Fn#511 invites you to select a number (but shows you that you are still at sensor 4). Enter the sensor number where you wish to go.</p>
<p>[SELECT] = Enter Data</p>	
<pre>511 107 ENTERED</pre>	<p>-The display verifies it is entered.</p>
<p>[AWAY] = Move Down</p>	<p>-AWAY takes you "down" to Fn#512</p>
<pre>512 <u>S</u>NSR DES 107 !</pre>	
<p>[AWAY] = Move Down (press repeatedly until the display shows..</p>	<p>-Press repeatedly until you reach the Fn# you want (517).</p>
<pre>517 <u>S</u>UPERVIS 107 1</pre>	<p>-Fn#517 asks if you want the (wireless) sensor to be supervised. A "0" is no, a "1" is yes.</p>
<p>[SELECT] = Enter Data</p>	
<pre>517 107 ENTERED</pre>	<p>-The display verifies it is entered.</p>
<p>[OFF] = Leave Prog'g</p>	<p>-Use OFF to get all of the way out of the programming mode.</p>
<pre>MAY 11 10:33 AM OFF</pre>	<p>-The display shows that you are at the user's Status Menu.</p>

Figure 3-4 Moving Through the Grid (cont'd.)

Example: Key Terms for Sensor Programming

Any large programming task (this system has 98 different sets of decisions to make) can be a little scary to deal with at first. This page has some of the key concepts you will need to understand for programming Points of Protection. Use this information and the example below for your first exposure to programming the System 8300.

Make sure you understand the underlined words in order to reduce confusion later.

1. There are 48 Points of Protection (16 hardwired and 32 wireless) available in this system. Each point could be a single sensor or a zone (loop). [see Fn#511]
1 through 16 = 16 hardwire
81 through 112 = 32 wireless
2. There are 16 Categories (type of device or function) that you select from, for each point. Categories include "Fire," "Silent Panic," "Keyswitch," and others. [see Fn# 400]

1= Entry/Exit	2= Perimeter
3= Interior	4= 24_Hour/Perimeter Tamper
5= Interior Tamper	6= Day Zone
7= Non-Alarm	8= Audible Panic
9= Silent Panic	10= Fire
11 = Emergency	12= Environmental
13= Trouble Category	14= Auxiliary(1)
15= Auxiliary(2)	16= Keyswitch

3. You can select any Category for any Point of Protection using Fn#513.

4. There are 4 Levels of Protection [Fn#41 1-4141:

411 =OFF 412=DAY

413=NIGHT 414=AWAY

5. Each Level can be assigned one of 6 Responses to a violation, for each Category.

0=OFF 1 =DELAYED

2=INSTANT 3=FOLLOWER

4=CHIME 5=WARNING TONE

Example

Using the programming lists on the following pages, you could select a Point of Protection, assign a Category, and specify how that Category would respond. Follow this example through the list to see how the process goes.

1. Choose hardwire zone 15 [Fn#511 = 15],
2. Make it a Fire zone (Category 10) using Fn#513 = 10.
3. You could then make its Response to be Delayed for the OFF Level of Protection [Fn#411 is the Response for the OFF Level of Protection. Set the tenth digit (Fire Category) to be 1. Fn#411 = xxx xxxx xlx xxx, the tenth number (fire) is "1" = Delayed].
4. To make the AWAY response for Fire to be instant you would use Fn#414 with the tenth number set to "2".

This example shows that you can set any of the 48 points of protection to any of 16 Categories of protection and assign any of 6 Response types to it for each of 4 Levels of protection. (Providing the ultimate variety of $48 \times 16 \times 6 \times 4 = 18,432$ response options.)

Programming Options-Short Version

=====000 Series: Installer Tests

011 SIREN TEST # 0= Sirens OFF; 1=Siren 1ON; 2= Siren 2 ON.
 012 RELAY TEST # 0= Relays OFF; 1= Relay 1 ON; 2= Relay 2 ON.
 013 X10 TEST # 0= All OFF; 1-8 turns corresponding unit ON.
 014 VERIFYTEST # Selecting this Fn# turns it on.

=====100 Series: System Setting

111 KEYPD CODE 6#s 6-Digit code for local (keypad) programming 999999
 112 REMOT CODE 6#s 6-Digit code for remote (computer program) 999999
 113 SYSTM REPORT # 0= Shut down; 1= Monitorina service; 2= Local.
 114 REPORT TYPE # 1= Backuo; 2= Duplicate/Split.
 115 ADJUNCT RPRT # 1=Backup; 2= Duplicate.
 116 WIRELS ENABL # 0=Disable. 1= Enable
 117 ABRVD ARMING # 0=Don't allow; 1=Do allow.
 118 MULTITRY LOK # 0= No lockout; 1= Yes, after 4 incorrect tries
 119 KEYSWTCH ARM # toggles OFF and: 1=Day; 2= Night; 3= Away.
 120 EMERGNCY KEY # Define Emergency keys: 0= **both Police and Emer-**
gency are Off, 1=Emergency, 2= Fire, 3= Environmen-
 tal, 4= Auxiliaryl.

121 DELAY TROUBL 4#s HHMM military time for audible trouble sound, Q =not
 delayed

122 SHORT DELAY # 0=10 1=20, 2=30, 3=40,4=50,5=60,6=120,7=180,
 8=240,9=300 seconds

123 LONG DELAY # Same as above, default 5=60 seconds

124 EXIT DELAY # 0= None; 1= Short; 2= Long.

12.5 PHONE ENABLE # 0= Keypad not a phone. 1=Keypad is a phone.

126 INTRCM ENABL # 0= Don't have keypad as intercom. 1=DQ use as
 intercom.

=====200 Series: Communications

211 DIALING TYPE # 0= Pulse, 1= Touch Tone.
 212 DIALER DELAY 7#s 0-9 (10 second) periods between alarm and placing the
 call (default 0 period), for first 7 ● ed channels shown at
 right-->

213 DTONE WAIT 2#s 1-16. Seconds for dial tone detect (default 4 sec)

214 INTRDIGT DLY # 1 or 3. Seconds pause caused by '#' (default 1 sec).

215 RETRY DELAY 3#s 5-260 Seconds before retry. Default 10 seconds.

216 GROUND START # 1= Enable ground start; 0= Disable.

217 2-LINE PHONE # 0=Disable (only 1), 1= enable (alternates if fails).

218 PHONE TEST # 0=Disable checking each hour ; 1= Enable.

219 MODEM PHONE# 16#s The phone number for CCU to call your computer. (*=
 empty)

220 CARRIER DLY 2#s 0-15 Wait how many (10 sec) periods? Default 3.

221 RING COUNT 2#s 1- 15 How many rings before modem answers?

231 PHONE# R1 16#s Monitoring service phone #1. **70 for call Waiting.

232 ACCOUNT # RI 6#s Account number assigned by Monitoring Service.
000000

233 MSG FORMT RI # 1=3/1(4/1) format; 2= 3/1 (4/1) Extended; 3= 4/2 format;
 4= 4/9 format.

234 PROTOCOL R1# 1 = Slow A; 2= fast A; 3= slow B; 4= fast B; 5=
 sumcheck 2300; 6= sumcheck 1400; 7= DTMF; 8= SIA
 (FSK); 9= AT&T (FSK).

235 MSG CODES RI 15chr's Hex string of (0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F)'s.

236 LISTEN-IN R1 # 0=Disable listen-in for receiver 1. 1= Enable.

241-246 Receiver 2 (same as 231-236 for receiver 1).

=====300 Series: Reporting Options

31 1 TEST INTERVL 2#s 0, 1-15. (1, 3, 5, and etc., up to 29 days)

312 TST RPT TIME 2#s Q -23. Hours past midnight for Check-In report.

313 RESTORAL RPT # Q= None, 1= minimum (time out), 2= manual; 3=
 Normal; 4=true

314 CANCELREPT # 0= Don't report alarm cancel 1 = Do.

315 AC POWER RPT # 0= Don't report AC failure/restoral. 1= Do.

This "short" version of the programming options is specially condensed to fit on the front and back of a single sheet for convenient use.

The Default setting is shown by an underline.

== Fn#235,245, and 212==

- 1- *Intrusion, Perim
- 2- *Intrusion, Interior
- 3- *Silent Panic
- 4- *Audible Panic
- 5- *Fire
- 6- *Emergency
- 7- *Environmental or Aux
- 8- *Trouble Category
- 9- Restoral
- A Bypass
- B Opening
- C Closing
- D Cancel
- E AC Failure
- F History Buff Full

[*] indicates the messages for 8-channel reporting.

316 SUSPEND REPT # 0= Don't report low battery suspend; 1= Do.
317 HISTORY REPT # 0= Don't dump history (to AT&T FSK receiver only). 1=

318 OPEN/CLS RPT # 0= Don't report OPEN or CLOSE; 1= Do.
319 CLOSESOUND # 0= Don't Beep siren on acknowledge; 1= Do.
320 BYPASS REPRT # 0= Don't Report bypassing a sensor, 1= Do.
321 BYPASS RESTR # 0= Don't report bypass restoral. 1 = Do.

=====400 **Series: Category Responses**
411 OFF ACTIONS 16#'s Responses (0-5), of each category, to violation when in OFF mode. Default: 0002 2452 2222 2002
412 DAY ACTIONS 16#'s Same for DAY. Default: 1202 2452 2222 2002
413 NITE ACTIONS 16#'s Same for NIGHT. Default: 2222 2252 2222 2222
414 AWAY ACTIONS 16#'s Same for AWAY. Default: 1222 2252 2222 2122

=====500 **Series: Protection Points (Sensors)**
511 SENSOR # 3#'s I-I 12. 1-16 = hardwired; 17-80 Not Used; 81-I 12 wireless.
512 SNSR DES 16chr's Describe type, location of Protection Point.
513 TYPE 2#'s Select one of 16 Categories.
514 PRIORITY # 0 Don't classify as priority; 1= Do.
515 LOOP TYP # Sensor contacts 0= Closed for non-alarm; 1 = Open. Defaults vary.
516 LOOP SPD # 0= Fast (20 msec); 1= Slow (400 msec).
517 SUPERVIS # 0= Don't supervise; 1= Do supervise. (Wireless only)
518 ENTY DLY # 0= None; 1= short delay; 2= Long delay.
519 ACTIVE # 0= Not Active; 1= Active.
520 BYPASS GP # 0= Don't include in bypass group; 1= Do.
521 COPY 3# Enter sensor number to copy to.

=====600 **Series: Sensor Bypassing**
611 BYPASS INHIB # 0= Don't inhibit 1= Do inhibit bypassing.
612 FORCE ARMING # 0 Auto Force Arming OFF (manual); 1= Auto ON. [See Fn.#613 also.]
613 AUTO RESTORE # 0= Auto Restore OFF; 1= Auto restore ON.
614 SWNGR BYPASS # 0= Don't Auto-bypass a Swinger 1-8= Yes, do, X times
615 PERMT BYPASS # 0 Don't allow permanent bypass; 1= Do allow.
616 BYPASS GP DSC 1 6chr's Describe bypass group.

=====700 **Series: System Outouts**
711 FIRE CADENCE # 0= intermittent; 1= Continuous. (cadence)
712 CHIME ENABLE # 0= OFF; 1= ON.
721 SRN1 CADENCE # 0= Intermittent; 1= Continuous
722 SRN1 DELAY 16#'s 0= Instant; 1= Short Delay; 2= Long Delay.
723 SRN1 TRIGGER 16#'s 0= Don't trigger upon alarm; 1= Do trigger.
724 SRN2 CADENCE # 0 Intermittent cadence; 1= Continuous
725 SRN2 DELAY 16#'s 0= Instant; 1= Short Delay; 2= Long Delay.
726 SRN2 TRIGGER 16#'s 0= Don't trigger upon alarm; 1= Do trigger.
727 ALRM TIMEOUT 3#'s (O-255, minutes until siren time-out). Default=15
731 RLY1 DURATN # 1= Short; 2=Continuous; 3= Same as siren timeout Fn#727
732 RLY1 TRIGGR 16#'s 0= Don't trigger upon alarm; 1 = Do trigger.(1: Entry/Exit)
733 RLA1+ TRIGGR 8#'s 0= Don't; 1= Do (see column at right)
734 RLY2 DURATN # 1= Short; 2= Continuous; 3= Same as siren timeout Fn#727
735 RLY2 TRIGGR 16#'s 0= Don't trigger upon alarm; Do trigger.(1: Fire)
736 RLA2+ TRIGGR 8#'s 0= Don't; 1= Do (see column at right)
741 X10 HOUSCODE 2#'s Assign X-10 premises code (I-16)

=====800 **Series: Users**
811 USER 2#'s Enter an ID number I-15.
812 USER DSC 1 6chrs Describe or name the user (or group of users).
813 USER CD 4#'s Enter the User's secret Access Code.
814 USER LVL # 1 (highest), 2, 3, or 4 (lowest); 0 to remove user.
815 USER DUR # 0= 4 hr, 1= 24 hr, 2= 5 day, 3=permanent,
821 KEYPAD # 1= first; 2= second, etc.; maximum of 8 (5 display)
822 KYPD DSC 1 6chrs Describe the location of the keypad.

== **Fn# Series 400** ==
- Responses -
0= Off 3= Follower
1 = Delayed 4= Tone
2= Instant 5= Chime

== **Fn# 400s/720s/730s** ==
- Categories -
1= Entry/Exit 9= Silnt Panic
2= Perimeter 10= Fire
3= Interior 11 = Emergency
4= 24-Hour 12= Envir
5= Int'r Tamper 13= Trouble
6= Day Zone 14= Auxiliary(1)
7= Non-Alarm 15= Auxiliary(2)
8= Aud 16= Keypad.

== Fn#513 ==
- defaults -
Hdwire Wireless Category (default)
11-13 92-94 Entry/Exit
14-16 95-98 Perimeter
7,8 101-105 Interior
9 100 24-Hour/Perim
Tamper
10 99 Interior Tamper
6 109 Aud.Panic
12 110-112 Emergency
5 106-108 Fire
- 91 Environmental
87-90 Trouble Category
3 81,82 Aux1
4 83-86 Aux2

== **Fn# 7331736** ==
1 Arm
2 Disarm
3 Test
4 Bypass
5 Open
6 Close
7 Cancel
8 AC loss

== Fn# 741==
1 Intrusion, Int'r Tamper,
Day Zone, Audible Panic
2 Silent Panic
3 Fire
4 Emergency
5 Environmental
6 Trouble
7 Auxiliary 1
8 Auxiliary 2

Programming Options-Long Version

NOTES:

1. If a condition is underlined in the "Explanation" column, that underline signifies the default setting from the factory.
- 2.* A "#" under Entry Format means that a number (0-9) must be entered there; "4#'s" means that up to four numbers (digits) can be entered.
3. A "chrs" means that characters (numbers or letters) can be entered; "16chrs" means that up to sixteen characters may be entered (eg., "2nd floor bath").
3. Normally, a "0" will select the OFF/DISABLED/NO condition and a "1" will select the ON/ENABLED/YES.
4. Data for the sensors (Function Number 511-521) is likely to be entered in a "loop." Appropriate use of the NIGHT key will make this a more convenient operation (see Figure 3-2).
5. "Function Number" will be shortened to "Fn#" in the Programming Lists.

Before you can program the system, you must enter the Master Installer Code at the request for Access Code. Press the pound (#) followed by the default six-digit number-the default number for this system is "999999." Change this number (use Fn# 111) to provide your dealership with secure control of the system.

Funct Numb.	Title	Entry Format*	Explanation
=====000 Series: Installer Tests			
011	Siren test	#	<u>0= Sirens OFF</u> ; 1= Siren 1 ON; 2= Siren 2 ON. Press "0," "1," or "2" as desired and the sirens will turn ON or OFF. When done, press "0" then press SELECT to exit.
012	Relay test	#	<u>0= Relays OFF</u> ; 1= Relay 1 ON; 2= Relay 2 ON. Operates like siren test; press "0" and SELECT to exit.
013	X-10 module test	#	<u>0= All OFF</u> ; 1-8 turns corresponding unit ON. Like sirens and relays; press "0" and SELECT to exit.
014	Verification Test	#	In this mode, the system doesn't provide any alarms or report to the monitoring service. The CCU monitors each sensor violation, beeps the keypads in response, and keeps a log of tested sensors. View the log at a keypad by pressing the [SELECT] button. Exit the Test by selecting < or >. Only 1 keypad may be in Test mode at a time.
			[Underline shows Default setting]
			[# means enter one-digit number]
=====100 Series: System Setting			
	110 Series: System Programming		
111	Set Installer Keypad Code	6#'s	6-digit code required for local (keypad) programming access, Default <u>999999</u> . This code must be entered by any service person before doing on-site programming.
			[6#'s means to enter six digits]

112 Set Installer Remote Code	6#’s	6-digit code for remote (optional computer program) access. Restricts programming access to those knowing the code. Default from factory, <u>999999</u> .
113 System Reporting	#	0= Shut down; <u>1= Remote (monitoring service) operation</u> ; 2= Local. Determines whether the system is essentially OFF (0), and only responds to the Dealer’s Access Codes (local or remote); will report to the monitoring service (1); or only alarms locally (2).
114 Reporting Type	#	<u>1 =Backup</u> ; 2=Duplicate/Split. “1” causes the dialer to toggle between two receiver numbers; if not successful on the first, it calls the second. “2” gives you the power to elect, for each type of report, whether to send the report to Receiver 1, Receiver 2, or both. Fn#’s 235 and 245 let you select which data goes to which receiver.
115 Adjunct Reporting (Type)	#	<u>1 =Backup</u> ; 2=Duplicate. “1” causes the Adcom to activate the Adjunct reporting device if the dialer was not successful on the first attempt. “2” initiates Adcom when the dialer is initiated.
116 Wireless Enable	#	<u>0= No, no wireless module in this system</u> ; 1= Yes, there is a wireless module.
117 Abbreviated Arming	#	<u>0= No, do not use</u> ; 1= Yes, use. If “1” then user can move the system to a higher Level of Protection (lowest to highest = OFF, DAY, NIGHT, and AWAY) by pressing only the first number of a valid Access Code, followed by the DAY, NIGHT, or AWAY key as desired (example, 7 [AWAY] for an access code of 7301, from any protection level). Other system rules affecting bypassing could still require an appropriate Access Code, if a bypass is required. NOTE: If 2 or more Access Codes start with the same number, the system won’t know who is arming it-the history buffer could be fooled.
118 Multi-Try Lockout	#	<u>0= No lockout</u> ; 1 = 1 = Yes, after 4 incorrect tries in a 5-minute period, lock out the offending (wired) keypad for 5 minutes (doesn’t work for wireless keypads).
119 Keyswitch Arming	#	Keyswitch (momentary make contacts) toggles between OFF and: 1= Day; 2= Night; <u>3= Away</u> . Keyswitch has LED’s that respond just like the keypad’s “Ready” (green) and “Arm/Alarm” (red) LED’s,
120 Emergency Key Assign	#	Define meaning of Emergency key (for all Wired keypads): 0=Off (<i>both</i> Police and Emergency keys are disabled), 1= <u>Emergency</u> , 2= Fire, 3= Environmental, 4= Auxiliary1,
121 Delayed Audible Trouble Option	4#’s	Set HHMM military time (up to 2359) when an audible trouble indication shall be allowed to sound (will sound at this time only, for 3 minutes). <u>Default= 0000</u> (disabled); Trouble beeps and the visual display will begin when Trouble is sensed, without regard to time, and continue until acknowledged. Fire category troubles will not be delayed and cannot be cancelled (UL requirement).

122 Length of Short Delay	#	Enter 0-9. (0=10, 1=20, 2=30, 3=40, 4=50, 5=60, 6=120, 7=180, 8=240, 9=300 seconds) Set this once for entire system. (Used by Fn# 124,518, 722/725)
123 Length of Long Delay	#	Enter 0-9. (0=10, 1=20, 2=30, 3=40, 4=50, 5=60, 6=120, 7=180, 8=240, 9=300 seconds) Set this once for entire system. (Used by Fn# 124,518, 722/725)
124 Length of Exit Delay	#	0=No delay; 1 =short delay; <u>2=long delay</u> . NOTE: This Fn# overrides the settings for the 400 Series Entry/Exit Category.
125 Telephone Option	#	0= Don't have keypad used as a phone. <u>1=Do</u>
126 Intercom Option	#	0= Don't allow keypad to be used as an intercom. <u>1=Do</u> use keypad as an intercom.

=====200 Series: Communications

210 Series: Modem and Dialer

211 Touch Tone or Pulse Dial	#	<u>0= Pulse</u> , 1= Touch Tone. The selected dialing method will become the default for all types of dialing within the security system (including keypad use as a telephone). User menu can select TT temporarily during use, with a “*“.
212 Dialer Delay	7#’s	0-9. How many (10 second) periods to wait between alarm and placing the call (<u>default, 0 interval</u>). Specify for each of the first 7 channels defined in Fn#235.
213 Dial Tone Wait	2#’s	1-16. How many seconds to wait for dial tone detect (<u>default, 4 sec</u>) before dialing anyway. (The dialer will first try 3 times to get the dial tone, before resorting to the “dial anyway” option.
214 Dialing Interdigit Pause	#	1 or 3. How many seconds long shall a dialing “pause” be? (<u>default, 1 sec</u>). The “#” stands for a pause, when entering a number to be dialed.
215 Retry Delay	3#’s	5-260 Wait how many seconds after failed call before retry. <u>Default, 10 seconds</u> . UL maximum =45 seconds.
216 Ground Start Option	#	1= Enable ground start, needed for phone interface in many private business exchanges; <u>0= Disable</u> .
217 Two-line Phone Line	#	<u>0= Disable (only 1 line)</u> 1= enable (alternates between lines after calling out failure):
218 Local Phone Test Option	#	<u>0= Disable</u> the checking of the local phone line every hour (Trouble after 12 consecutive Failures); 1 = Enable (checks both lines if Fn# 217 is “1”).

219	Modem Call Number	16#'s	<p>Enter the phone number where your computer will be, while it is remote programming. (The CCU must call back to the modem at that number as part of the connection process.) <u>Default= empty</u>. If empty, remote programming is not possible and CCU will not listen for calls from CCUBOSS. Enter a star (*) to empty, if there is a number in this space.</p> <p>NOTES: Temporarily disable the Call Waiting option, if there is one (star-7-O may work, refer to local phone service provider). Use “#” for a pause, if required for dialing out. Remember leading l's and area codes, as required.</p>
220	Modem Carrier Detect Delay	2#'s	<p>0-15 When reporting (SIA or AT&T FSK), modem spends how many (10 sec) periods trying to detect the carrier signal from the device on the other end of the line? <u>Default 3</u> (30 seconds).</p>
221	Number of Incoming Rings	2#'s	<p>1-15 Allow how many incoming rings before the modem answers the call to check for CCUBOSS.</p>
230 Series: Receiver 1			
231	Rcvr 1 Phone Number	16#'s	<p>Enter the (monitoring service) phone number for the dialer to call, up to 16 digits.</p> <p>NOTES: For phones with the Call Waiting option, the “*70” may temporarily disable the Call Waiting, check with the service provider. The “#” is a pause, if needed for business PBX phone systems. To prevent dialing out, enter a single “*” (which removes the phone number). Remember leading l's and area codes, as required. <u>No default</u></p>
232	Rcvr 1 Account Number	6#'s.	<p>Account number assigned by Monitoring Service. Use leading zeros for numbers smaller than 100,000. <u>000000</u></p>
233	Rcvr 1 Message Format	#	<p><u>1=3/1(4/1) format; 2= 3/1 (4/1) Extended, 3= 4/2 format, 4= 4/9 format (requires DTMF protocol, Fn#234) see Figure 3-5.</u></p>
234	Rcvr 1 Receiver Protocol Format	#	<p>1= Slow A; 2= Fast A; <u>3= Slow B</u>; 4= Fast B; 5= Sumcheck 2300; 6= Sumcheck 1400; 7= DTMF; 8= SIA(FSK); 9= AT&T (FSK). See Receiver Compatibility chart, at the end of this chapter.</p>
235	Communicator Message Codes	15chrs	<p>Enter a string of numbers and characters, (0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, one for each message) that the monitoring station will understand to mean each of the following messages. A 0 (zero) means that the message will not be sent. Enter the data in the order below: <u>Defaults follow descriptions</u>.</p> <p>[15chrs means to enter fifteen characters (alpha or numeric, refer to Fig. 3-1)]</p>

- *the “number”to send to indicate Intrusion-Perim, Entry/Exit, 24-Hr/Perim Tamper, Day Zone 1
- [*]the “number” to send to indicate Interior Intrusion, and Interior Tamper 2
- [*]the “number” to send to indicate Silent Panic 3
- [*]the “number” to send to indicate Audible Panic 4
- [*]the “number” to send to indicate Fire 5

- [*]the "number" to send to indicate Emergency 6
- [*]the "number" to send to indicate Environmental, Auxiliary 1 and 2, and Trouble Category 7
- [*]the "number" to send to indicate System Trouble 8
- the "number" to send to indicate Restoral 9
- the "number" to send to indicate Sensor Bypass Restoral A
- the "number" to send to indicate Opening B
- the "number" to send to indicate Closing C
- the "number" to send to indicate Cancel D
- the "number" to send to indicate System Trouble Restoral E
- the "number" to send to indicate Other Reports (History Buffer needs dumping-60 events, Test, or Restoral) F

[*] **NOTE:** ADCOM/8_channel reporting formats (Fn#233 and 243) use the first 8 (starred) messages,

236 Rcvr 1 Listen-In # 0= Don't use Listen-In option for receiver #1. 1= Do use Listen-In option for receiver #1 .

240 **Series: Receiver 2**

241 Rcvr 2 Phone Number 16#'s Enter the (monitoring service) phone number for the dialer to call, up to 16 digits.
NOTES: For phones with the Call Waiting option, the "*" temporarily disables the Call Waiting on AT&T service, check with the service provider on non-AT&T phone service. The "#" is a pause, if needed for business PBX phone systems. To prevent dialing out, enter a single "*" Remember leading 1's and area codes, as required. No default

242 Rcvr 2 Account No 6#'s Account number assigned to the user by the Monitoring Service. Use leading zeros for numbers smaller than 100,000. Default 000000

243 Rcvr 2 Message format # 1= 3/1 (4/1) format; 2= 3/1 (4/1) Extended, 3= 4/2 format, 4= 4/9 format (see Figure 3-5).

244 Rcvr 2 Receiver Protocol Format # 1= Slow A; 2= Fast A; 3= Slow B; 4= Fast B; 5= Sumcheck 2300; 6= Sumcheck 1400; 7= DTMF; 8= SIA(FSK); 9= AT&T (FSK). See Receiver Compatibility chart at the end of this chapter.

245 Communicator Message Codes 15chrs Enter a string of numbers and characters, (0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, one for each message) that the monitoring station will understand to mean each of the following messages. Enter the data in the order below: Defaults follow descriptions
[15chrs means to enter fifteen characters (alpha or numeric, see Fig. 3-1)]

- *the "number"to send to indicate Intrusion-Perim, Entry/Exit, 24-Hr/Perim Tamper, Day Zone 1
- [*]the "number" to send to indicate Interior Intrusion, and Interior Tamper 2
- [*]the "number" to send to indicate Silent Panic 3
- [*]the "number" to send to indicate Audible Panic 4
- [*]the "number" to send to indicate Fire 5
- [*]the "number" to send to indicate Emergency 6

- [*] the "number" to send to indicate Environmental, Auxiliary 1 and 2, and Trouble Category 7
- [*] the "number" to send to indicate System Trouble 8
- the "number" to send to indicate Restoral 9
- the "number" to send to indicate Sensor Bypass Restoral A
- the "number" to send to indicate Opening B
- the "number" to send to indicate Closing C
- the "number" to send to indicate Cancel D
- the "number" to send to indicate System Trouble Restoral E
- the "number" to send to indicate Other Reports (History Buffer needs dumping-60 events, Test, or Restoral) F

[*] **NOTE:** ADCOM/ 8-channel reporting formats (Fn#233 and 243) use the first 8 (starred) messages.

246 Rcvr 2 Listen-In # 0 = Don't use Listen-In option for receiver #2. 1= Do use Listen-In option for receiver #2.

=====300 **Series: Reporting Options**

311 Test Report (Check-in) interval 2#'s Number of "odd-day" (1, 3, 5, and so on up to 29 days) intervals between system check-ins to the monitoring service. Enter 0 to 15 as explained here.

NOTE: To figure the number to enter, use this table:

Enter	Days	Enter	Days	Enter	Days	Enter	Days
1	1	5	9	9	17	13	25
2	3	6	11	10	19	14	27
3	5	7	13	11	21	15	29
4	7	8	15	12	23		

Rule-of-Thumb: To calculate the interval (days) multiply the number you enter by two, then subtract one. Default. 0 off. The check-in message is RESTORAL (this option not valid for 8-channel).

312 Test Report Time 2#'s Number from 0 to 23, telling how many hours after midnight to make the Check-In report. A "0" (zero) will mean that the report is made between midnight and 1:00 a.m., a "1" will mean between 1:00 and 2:00, et cetera. The exact time during the hour is calculated in the system, as a function of the account number. Default= 0

313 Restoral Report Type # 0= None, 1= Minimum restoral (system time-out); 2= Manual restoral; 3= Normal (sensor restoral); 4= True (manual plus sensor)

314 Alarm Cancel Report Option # 0= Don't report a cancel, 1= Do report a (manual) alarm cancel, regardless of the setting of Fn#313.

315 AC Power Fail/Restoral Option # 0= Don't report failure/restoral, 1= Do.

NOTE: Power glitches of less than 180 seconds are ignored

316 Operation Suspend Report Opt. # 0= Don't report when operation shuts down due to low battery, 1= Do.

- 317 Event History Report Option # 0= Don't dump event history to monitoring service (to AT&T FSK receiver only) when full (60 of possible 64 events), and don't dump event history in the event of Suspending Operation; 1=Do.
NOTE: The history buffer is maintained whether this option is 0 or 1, and can be interrogated from CCUBOSS. Up to 64 events are kept, with the oldest being lost when a new event occurs,
- 318 Opening/Closing Report Option # 0= Don't report OPEN or CLOSE; 1 = Do report whenever status change from "AWAY" or to "AWAY"
- 319 Closing Report Audible # 0= Don't sound siren (only, not keypad) beep when monitoring service acknowledges closing; 1= Do.
- 320 Bypass Report Option # 0= Don't reoort bypassing a sensor, 1=Do.
NOTE: *Permanent* bypasses are only reported at creation and removal.
- 321 Bypass Restoral Report Option # 0= Don't report bypass restoral, **1** = Do (if allowed by Fn#320).

=====
 =====400 Series: Categories

- | | | | |
|---------------------------------|--------------------|-------------------|----------------------|
| 1= Entry/Exit | 5= Interior Tamper | 9= Silent Panic | 13= Trouble Category |
| 2= Perimeter | 6= Day Zone | 10= Fire | 14= Auxiliary(1) |
| 3= Interior | 7= Non-Alarm | 11= Emergency | 15= Auxiliary(2) |
| 4= 24-Hour/
Perimeter Tamper | 8= Audible Panic | 12= Environmental | 16= Keyswitch |

RESPONSES

- | | | |
|------------|-------------|--------------------------------------|
| 0= Off | 2= Instant | 4= Warning Tone |
| 1= Delayed | 3= Follower | 5= Chime (keypad DipSw#4 must be ON) |

- 411 OFF Action Mode Assignment 16#s For each of the 16 above Categories (in the order described above) enter a number (0-5), describing what the response should be to an alarm for that category, with the system in the OFF mode. Enter "0" for unused categories. Example (Default): 0002 2452 2222 2002 (spaces added to make reading numbers easier) sets all categories Off except 4, 5, 8-13, are Instant; 6 (Day Zone) is Warning Tone; and 7 (Non-alarm) is Chime. Table 3-2 (after this listing) shows all default settings.
- 412 DAY Action Mode Assignment 16#s For each of the 16 above categories (in the order described above) enter a number (0-5) describing what the response should be to an alarm for that category, with the system in the DAY mode. Enter "0" for unused categories. Default: 1203 2452 2222 2002 (spaces added to make reading numbers easier). See Table 3-2.
- 413 NIGHT Action Mode Assignment 16#s For each of the 16 above Categories (in the order described above) enter a number (0-5) describing what the response should be to an alarm for that category, with the system in the NIGHT mode. Enter "0" for unused categories. Default: 2222 2252 2222 2222 (spaces added to make reading numbers easier). See Table 3-2.

414 AWAY Action Mode Assignment 16#'s For each of the 16 above categories (in order, described above) enter a number (0-5), describing what the response should be to an alarm for that category, with the system in the AWAY mode. Enter "0" for unused Categories. Default: 1222 2252 2222 2122 (spaces added to make reading numbers easier). See Table 3-2.

=====500 Series: Sensors (Points of Protection)

Proper use of the [SELECT], [AWAY], and [NIGHT] keys will allow you to move smoothly through the different Fn#'s in the Sensors group. See the beginning of this chapter.

Note-Setting Sensor Loop Functions: With the 400 and 500 series of functions, you can designate any sensor or loop to fill any function. **Example:** Hardwire Zone 13 is defaulted to provide indication of trouble with any mechanical device, such as a cooler, exhaust fan, animal feeding device for the farm-you can make it a second Fire zone. Use Fn#511 to select "Sensor 13." Go to Fn#513 and enter a "10" (the Category for Fire). This Zone (13) will now respond according to the 400 series' "fire" digit (the tenth digit-Fn#411 - would be 0002 2452 2222 2002).

511 Sensor (Protection Point) Number 3#'s Enter a number 1-12. 1-16 are hardwired Points only, 17-80 not used, 81-112 are wireless only. Selecting a number allows editing/setting of the variables (Fn#512-521) for that Protection Point.

512 Descriptor 16chars Describe type, location of Protection Point. (Examples: NE BDRM WINDOWS, 84 KITCHEN SMOKE, or 08 FMLY RM INTRU) Default "SENSOR ##". where ## is the sensor number.
NOTE: Be as clear as possible! Both you and the customer use this description to identify sensor or zone points (e.g., for low battery, alarm, bypassing purposes). Include the sensor number in the description. To enter characters see Figure 3-1.

513 Category (type) 2#'s Tell which of the 16 Categories to place the sensor in (see Categories under "400 Series") Defaults follow:

Hdwir#	Wireless #	Default Category
1-13	92-94	Entry/Exit
14-16	95-98	Perimeter
7,8	101-105	Interior
9	100	24-Hour/Perim Tamper (default: Priority)
10	99	Interior Tamper (always Priority)
6	109	Aud.Panic
1,2	110-112	Emergency (default: Priority)
5	106-108	Fire (always Priority)
	91	Environmental
	87-90	Trouble Category
3	81,82	Aux1
4	83-86	Aux2

514 Priority # = Don't make "Priority"; 1= Do. Making a Protection Point "Priority" means that it can never be bypassed. (Fire and Interior Tamper are forced to be Priority; 24-Hour/Perim Tamper and Emergency default to Priority, but can be changed.)

- 515 Open/Closed Circuit Sensors # 0= Sensors are Closed for non-alarm; **1** = Sensors are Open for non-alarm. Indicate sensor's switch status.
NOTE: The "fault" condition (shorting a closed loop, or cutting an open loop) will produce System Trouble (T) or Alarm (A) according to the Category assigned in Fn#513, as noted here. Defaults follow the (A) or (T):
- | | | | |
|----------------------------|--------------------|-----------------------|--------------------------|
| 1= Entry/Exit (A)Q | 5= Intr.Tamper(A)Q | 9= Silent Panic(T)1 | 13= Trouble Category(T)0 |
| 2= Perimeter (A)Q | 6= Day Zone(A)0 | 10= Fire(T)1 (A if 0) | 14= Auxiliary-I (T)1 |
| 3= Interior (A)Q | 7= Non-Alarm(T)0 | 11=Emergency(T)1 | 15= Auxiliary--2(T)1 |
| 4= 24-Hour/Perim Tmpr (A)Q | 8= Aud Panic(A)1 | 12= Environmental(T)1 | 16= Keyswitch(T)1 |
- 516 Loop Slow/Fast # 0= Fast (20 msec); 1= Slow (400 msec). Indicate hardwire sensor response time. (Fast setting works with the USP and 9 and 11 Ademco window bug sensors.) This function ignored for other types of sensor.
- 517 Supervision # 0= None; 1= Supervised-Hardwired supervision is not optional; wireless supervision may be removed for portable devices.
- 518 Entry Delay # 0= None; 1=Short delay; 2=long delay upon entry.
- 519 Active? # 0= Not active, no sensor by that number in the system, or ignored by CCU; 1= Active, sensor is to be monitored by CCU.
- 520 Custom Bypass Group # 0= Don't include this sensor as part of the Custom Bypass Group; 1= Do. (The custom bypass group can all be bypassed at one time by bypassing sensor "999" from the keypad; if permitted by Fn# 513, 514, 611 and 615.) Priority sensors cannot be bypassed, see Fn#514.
- 521 Copy Sensor Programming to 3#'s If you wish to copy this sensor's data (except the descriptor) for another sensor enter the sensor number to which you wish to copy.

=====600 Series: Sensor Bypassing

- 611** Bypass Inhibit # _ = Don't inhibit; 1= Do inhibit bypassing. If bypass is inhibited, the user cannot arm the system with any sensor in violation.
- 612 Auto Force Arming # 0= Auto Force Arming OFF (manual); 1= Auto ON. If Auto Force Arming is turned on, the system will arm when told to, even with a (non-Priority) zone or sensor in a faulted or violated state; the system will make a protest sound and will list the alarming sensors (for Display keypad; beeps at non-display keypad) before arming. [See Fn#613 also.] If Auto Force Arming is OFF, manual bypass will be required to arm a system with a non-priority sensor in the faulted state.
NOTE: Fn#611 can override this option so that bypasses cannot be established and the system cannot be armed.
- 613 Auto bypass Restore # 0= Auto Restore OFF; 1= Auto restore ON. If Auto Restoral is ON a temporarily bypassed sensor will be restored to service (NOT bypassed) if it returns to the non-alarm state while the system is armed.

- 614 Automatic Swinger Bypass # 0= Don't Auto-bypass a Swinaer; 1-8= Yes, do. The number entered indicates the number of violations allowed before the sensor is Auto-bypassed. The bypass remains in effect until the system Level of Protection is changed. (Entering "1" means that the first violation will be processed as an alarm, but the second will not and the sensor will be bypassed.)
NOTE: Priority sensors will also be Auto-bypassed; Fn#611 overrides this function.
- 615 Permanent Bypass? # 0= Don't allow permanent bypass; 1= Do allow If 0, then each bypass must be re-entered each time before the user can arm a system. (See also Fn#611) If bypass reporting is enabled, permanent bypasses are only reported when created, and again when removed.
- 616 Bypass Group Description 1 6chrs Describe bypass group (see Fig 3-I for reminder on entering characters). Fn#520 allows assigning sensors to a group that can all be bypassed with a single bypass command. An example would be bypassing the pool, back door, and Family Room/bar area while protecting the rest of a household; or bypassing a loading dock and store-room while protecting other loading docks and the rest of a business. Default = BYPASSGROUP (zone 999)

=====700 Series: System Outputs

710 Series: Gerieral

- 711 Fire Cadence Option # 0= Intermittent cadence; 1= Continuous cadence. If 0, fire cadence will be about 2 second ON and 1 second OFF. "Intrusion," "Police," and "Panic" will take whichever cadence "fire" does not take.
- 712 Chime Option # = Don't allow; 1= Do allow chime. If "1" and a sensor/zone is set to chime for a Level of Protection (see Fn#s 41 I-414), then keypads will chime if the sensor is violated and the system is in that Level of Protection. User can change this function through user programming.
NOTE: A user control and a dip-switch on each keypad allow silencing the Tone and Chime for that keypad.

720 Series: Sirens

CATEGORIES

- | | | | |
|-----------------------------|--------------------|-------------------|----------------------|
| 1= Entry/Exit | 5= Interior Tamper | 9= Silent Panic | 13= Trouble Category |
| 2= Perimeter | 6= Day Zone | 10= Fire | 14= Auxiliary(1) |
| 3= Interior | 7= Non-Alarm | 11= Emergency | 15= Auxiliary(2) |
| 4= 24_Hour/Perimeter Tamper | 8= Audible Panic | 12= Environmental | 16= Keyswitch |

- 721 Siren/Bell #1 Cadence # = termittent cadence; 1= Continuous cadence. This selection determines if the power output from the CCU to siren #1 will be constantly on, or controlled by Fn#711. 0 yields control to Fn#711, 1 overrides Fn#711.

722 Siren/Bell #1 Delay	16#'s	<u>0= Instant</u> ; 1= Short Delay; 2= Long Delay until the siren/bell sounds. Enter 16 ones, zeros, or twos, corresponding to the Categories above.
723 Siren/Bell #1 Category Triggering	16#'s	0= Don't trigger upon alarm from this Category; 1= Do trigger. Enter 16 ones or zeros, corresponding to the Categories above. Default is <u>1111 1101 0111 1110</u> (skips Non-Alarm, Silent Panic, and Keyswitch).
724 Siren/Bell #2 Cadence	#	<u>0= Intermittent</u> cadence; 1=Continuous cadence. This selection determines if the power output from the CCU to siren #2 will be constantly on, or controlled by Fn#711. 0 yields control to Fn#711, 1 overrides Fn#711.
725 Siren/Bell #2 Delay	16#'s	0= Instant; <u>1=short Delay</u> ; 2= Long Delay until the siren/bell sounds. Enter 16 ones, zeros, or twos, corresponding to the Categories above.
726 Siren/Bell #2 Category Triggering	16#'s	<u>0= Don't trigger</u> upon alarm from this Category; 1= Do trigger. Enter 16 ones or zeros, corresponding to the Categories above. Default is <u>1111 1101 0111 1110</u> (skips Non-Alarm, Silent Panic, and Keyswitch).
727 Siren/Bell Timeout	3#'s	Enter a number (0-255). 0= Siren never times out. N= number of minutes until the siren times out. <u>Default = 15</u> . Note: Keypad sounder time out is same as siren.
730 Series: Relays		
731 Relay #1 Duration	#	1= Momentary (5 seconds); <u>2= Continuous until manual restoral</u> (see Glossary); 3= Same as siren timeout.
732 Relay #1 Triggering	16#'s	0= Don't trigger upon alarm from this Category; 1= Do trigger. Enter 16 ones and zeros, corresponding to the Categories. <u>Default</u> , all off except Entry/Exit.
733 Additional Relay #1 Triggering	8#'s	<u>0= Don't</u> or 1= Do trigger the relay at the occurrence of the additional eight conditions/occurrences, respectively (Make sure you select appropriate Duration.): [For interrupting power, See "Hardwire Smoke Detectors," end of Chapter 2.] (1) arming the system-(setting to DAY, NIGHT, or AWAY) (2) disarming the system-(setting to OFF from any mode, including OFF) (3) test-(if a bypass is restored) (4) bypass-(if a temporary, autobypass, or autoswinger bypass occurs-no trigger in the OFF Level of Protection) (5) opening-(leaving the AWAY mode) (6) closing-(going to the AWAY mode) (7) cancel-(going to OFF from an Alarm) (8) AC fail-(when the CCU determines that power has failed, not instantaneous)

734 Relay #2 Duration	#	Same as 731, but for relay #2.
735 Relay #2 Trigger	16#'s	Same as 732, but for relay #2. <u>Default</u> , all off except Fire.
736 Additional Relay #2 Triggering	8#'s	Same as 733, but for relay #2.
740 Series: X-10		
741 X-10 House Code	2#'s	Assign house code (1-16) to correspond to X-10 codes "A" through "P." The X-10 devices must have the same house code to be controlled by the CCU. Other X-10 devices may be used on the premises, if assigned different House Code(s). NOTE: Select an X-10 ID number (not house code) from below, and the X-10 device will react to that stimulus (for example, set the ID to 2 for an exterior Silent Panic strobe light). <ul style="list-style-type: none"> 1 Intrusion (entry/exit, perimeter, interior), 24-Hour/Perimeter Tamper, Interior Tamper, Day Zone, Audible Panic 2 Silent. Panic 3 Fire 4 Emergency 5 Environmental 6 Trouble Category 7 Auxiliary 1 8 Auxiliary 2

=====800 Series: Users

810 Series: Access Codes

811 User Number	2#'s	Enter a number 1-15. Like the sensors, these numbers are just used to identify and call up the User data that you are editing or creating in the following (800 series) function numbers. To remove, see Fn#814.
812 User Descriptor	1 6chrs	Describe or name the user (or group of users) corresponding to this user number.
813 User Code	4#'s	Enter the secret Access Code for the user you just defined in Fn#'s 811 and 812. Remember that a Duress code is entered by raising the first number of the Access code; a User code that starts with a "9" will 'roll over' to a "0" for a Duress code.
814 Access Level	#	1 (highest), 2, 3, or 4 (lowest), or else 0 to remove. <u>Default is 1 for user #1 and 4 for all others.</u>
815 Access Duration	#	3=permanent, 0= 4 hr, 1= 24 hr, 2= 5 day. <u>(For User #1, the default must be "permanent;" for all others it is "4 hrs.")</u>

820 Series: Keypads

821 Keypad Number	#	1= Keypad #1, etc.; maximum of 8, maximum of 5 full text keypads. Keypads are numbered by the setting of their dip switches. The CCU must be programmed to know which numbers correspond to which keypads.
822 Keypad Descriptor	16chars	Describe the location of the keypad.

Programming Error Messages

The following messages may occur on your display.

ACCESS DENIED	You entered an access code, and it was incorrect.
CODE IN USE	Fn#813: this access code is already in use as an access code or a duress code, and cannot be used.
INVALID SENSOR NUMBER	You selected a sensor number that does not exist or is not applicable to the action you chose to take.
NOTHING IN LIST	This is not really an error statement. It is displayed at the beginning of the validation test (Fn#014) or user's test, before any sensors have been tested.
SYSTEM MUST BE OFF	You can only enter installer programming or the Walk Test (Verification test from the OFF Level of Protection.
ONLY HARDWIRED/ ONLY WIRELESS SENSORS	Fn#'s 515, 516, and 517 should not be set to options that do not apply for the type of sensor in question (do not try to set loop speed for wireless sensors, don't set "unsupervised" for hardwired sensors).
ALARM/TROUBLE LIST IN USE	The Alarm/Trouble List is being viewed or modified at another keypad.

UL Programming Requirements

Table 3-1 indicates programming areas where UL requirements dictate specific program settings for Underwriter's Laboratories (UL) Listings (columns are for different UL Listings). If no entry, the function is optional. Items underlined show where the system's default setting is inconsistent with these UL requirements.

Table 3-1 UL Programming Requirements

Fn#	Description	UL Commercial Note 1	Res Medical UL1637	Res Fire UL985	Res Burg UL1023
113	Reporting	(1) Mon. Svc.	(1) Mon. Svc.		
121	Delay Trbl?	(0) Don't	(0) Don't	(0) Don't	(0) Don't
124	Exit Delay	60 Sec. max.		60 sec. max.	
211	Dial Type	Note 2	Note 2		
212	Dial Delay	Note 2	Note 2		
213	Tone Wait	3-5 Sec.	3-5 sec.		
215	Retry Dly	45 Sec. max.		45 sec. max.	45 sec. max.
216	GndStart	(0) Don't use	(0) Don't use	(0) Don't use	Don't use
233/243	Msg.Fmt.:	Match the monitoring service equipment and requirements			
234/244	Rcvr.Fmt.:	Match the monitoring service equipment and requirements			
236/246	Listen in	(0) don't			
311	<u>Rpt.Intrvl.</u>	<u>(1) day</u>	<u>(1) day</u>		
313	Restoral Rpt.	(3) Normal			
315	<u>AC.Pwr Rpt</u>	(1) do	(1) do	<u>(1) do</u>	(1) do
<u>316</u>	<u>Suspend Rpt.</u>	<u>(1) do</u>	<u>(1) do</u>		
<u>318</u>	<u>O/C Rpt</u>	<u>(1) do</u>			
<u>319</u>	<u>Close Beep</u>	<u>(1) do</u>			
<u>320</u>	<u>Bypass Rpt.</u>	<u>(1) do</u>			<u>(1) do</u>
321	<u>Rypss Rstr Opt.</u>	<u>(1) do</u>			<u>(1) do</u>
411 thru 414	See Table 3-4				
514	Priority Snr		(1) yes	(1) yes	
517	Wrsls Supervs.	na	Note 3	(1) yes	Note 3
518	Entry Delay	X-60 sec.(Note 4)			45 sec.max.
520	Bypass Group	(0) no	(0) no	(0) no	(0) no
612	AutoForceArm	(0) no			(0) no
614	AutoSwingBypss	(0) no			(0) no
615	Perm.Bypass	(0) no			(0) no
711/721/724	Siren Cadences:	Burglary, Fire, & Medical must each be different. Note 5.			
722/725	Siren Delays:	0			
727	Siren Timeout	(15) minimum	(5) minimum	(4) minimum	(4) minimum
821	Keypad number:	At least 2 total (1 must be control/display type), maximum of 5.			

Note 1: UL Commercial includes UL365 (burglary-police), UL609 (burglary-local), UL1610 (burglary-central station), and UL1635 (digital communicators).

Note 2: (Fn#211,212,213) Must report the alarm within 90 seconds, maximum.

Note 3: (Fn#517) Supervise "permanent" mounted devices, do not supervise portable devices.

Note 4: (Fn#518) For UL1635, must be 45 seconds maximum.

Note 5: UL1637 requires medical (Emergency) to have priority over Burglary. Program with 711 (I), 721 (0), and 724 (0); siren cadence matches keypad cadence.

Note 6: Underline signifies an area where defaults differ from UL requirements.

System Defaults for Fn#411 thru 414

Table 3-2 Programming Defaults, Categories versus Response Type (Fn# 411-414)

<u>Category</u>	<u>OFF (411)</u>	<u>DAY (412)</u>	<u>NIGHT (413)</u>	<u>AWAY (414)</u>
Entry/Exit (1)	Off	Delay	Instant	Delay
Perimeter (2)	Off	Instant	Instant	Instant
Interior/Follower (3)	Off	Off	Instant	Instant
24-Hour/Perimeter Tamper (4)	Instant	Instant	Instant	Instant
interior Tamper (5)	Instant	Instant	Instant	Instant
Day Zone (6)	Tone	Tone	Instant	Instant
Non-Alarm (7)	Chime	Chime	Chime	Chime
Audible Panic (8)	Instant	Instant	Instant	Instant
Silent Panic (9)	Instant	Instant	Instant	Instant
Fire (10)	Instant	Instant	Instant	Instant
Emergency (Medical) (11)	instant	Instant	Instant	Instant
Environmental (12)	Instant	Instant	Instant	Instant
Trouble Category (13)	Instant	Instant	Instant	Instant
Aux1 (14)	Off	Off	Instant	Delay
Aux2 (15)	Off	Off	Instant	Instant
Keyswitch (16)	Instant	Instant	Instant	Instant

This chart shows default settings for each type of zone/classification, plus the **UL Listing settings (in bold)** for all UL commercial and residential listings discussed in the preceding figure.

Programming for Multiple Tamper Requirements

UL requires that telephone block monitoring initiate an alarm in the armed Levels of Protection, and non-alarm (Trouble) in the disarmed (OFF) Level of Protection. However, the UL bell tamper must produce an alarm in all Levels of Protection. One panel (CCU) tamper is required on the panel door, the second is optional; panel tampers must cause an alarm if violated in the armed mode but alarm is optional in the unarmed mode. This may require differently programmed hardwired zones for UL tamper for telephone block, panel, and bell.

Monitoring Service Program Data

Certain variables may be necessary for the Monitoring Service, if they are to recognize the more complete types of the recording formats. In addition, you will need to know about compatibility of your format selection and the Monitoring Service's receiver(s). The next two sections deal with the extension codes for the extended format reporting and the codes for 4/9 reporting. Following that is a table of receiver compatibility.

3/1 and 4/1 Extended, and 4/2, Reporting Data

NOTES:

1. If you are sending to a receiver that interprets Extended formats from Radionics panels, it is likely to expect trouble to be reported as an "F" instead of an "8" (consult with the monitoring service to make sure). You can configure your system to swap the two characters in Fn#235 (for receiver 1) and Fn#245 (receiver 2). For this configuration, notify the monitoring service that the "8" will not indicate an alarm. Swapping the two characters will preserve your ability to provide unique point identification as discussed in Appendix B.
2. If you are sending 3/1 extended sumcheck to an Ademco 685, the receiver will have to be in the "print all" mode and the Low Speed format printout must be the one used for interpretation of the report. The High Speed format printout will be incorrect on some reports.

Here is information about 3/1 or 4/1 reporting and their "extended" reporting. Three-one format would be AAA R where the "A" are the account information (AAA for 3/1, AAAA for 4/1) and "R" is the report (alarm) code. For extended reporting, this is followed by the same "R" three more times and the extension: RRR E. The 4/2 format has the four-digit account code, the Report Code, and the Extension (AAAA R E). An explanation of the "E" codes follows. The meaning of the "E" depends on the report (alarm) code ("R") meaning. R Code = 0 is a Bypass report. (Some receivers may show 0 as an "A.") These include autoswinger, temporary, and permanent. The extension code "E" is the Category being bypassed, as indicated here:

E will be 0 for Fire, Keyswitch	5 for Interior Tamper	B for Emergency
1 for Entry/Exit	6 for Day Zone	C for Environmental
2 for Perimeter	7 for Non-Alarm	D for Trouble Category
3 for Interior	8 for Audible Panic	E for Auxiliary 1
4 for 24 Hour/Perim Tamper	9 for Silent Panic	F for Auxiliary 2

R Codes 1 through 7 (default settings) indicate the following. The number in parentheses is the Category number as listed in the Fn#400 Series.

R Code = 1 is Intrusion-including: Entry/Exit(Category #1), Perimeter (2) 24-Hr (4) and Day Zone (6).

R Code = 2 is an Interior Intrusion-Interior (3) Interior Tamper (5).

R Code = 3 is Silent Panic (9).

R Code = 4 is Audible Panic (8).

R Code = 5 is Fire (10).

R Code = 6 is Emergency (11).

R Code = 7 is Environmental (12) Auxiliary1 (14) Auxiliary2 (15) Trouble Zone (13).

REMEMBER that these codes are the default, but can be changed by Fn# 235 and 245. This is discussed further in Appendix B, as a tool in the programming of point identification for multiple sensors.

The extension (“E”) that is sent for any of the preceding is a number 1-15 (written in hex, 1-F) that is determined by the sensor/zone number (1-16 for hardwire, and 81-112). (This extension is used as a tool for point identification of multiple sensors and is discussed further in Appendix B.)

The easiest way to see how the extension number occurs is to look at the table on the right (or the example chart in Appendix B). Mathematically, the extension is the remainder left when dividing the sensor/zone number by 15 (except that the remainder “0” is replaced by 15 [“F” in hex]).

With this method and the default settings, an Entry/Exit alarm on hardwire zone 12 would give “1” and “C” for the “R” and “E” of the report (Report Code 1 for Entry/Exit, extension C because it is in sensor/zone 12). The defaults (see Fn#513) are designed so that all may be used and unique identification will still be provided. If you find a need to change defaults, Appendix B discusses how to change the defaults to provide additional sensing/reporting of any specific type, while maintaining all, or most, of the unique reporting ability.

Sensor/Zone #				Extn #
1	16	91	106	1
2		92	107	2
3		93	108	3
4		94	109	4
5		95	110	5
6	81	96	111	6
7	82	97	112	7
8	83	98		8
9	84	99		9
10	85	100		A
11	86	101		B
12	87	102		C
13	88	103		D
14	89	104		E
15	90	105		F

R Code = 8 is a System Trouble. These are the extension codes that specify which trouble:

Extension E is:

- | | | |
|---------------------------------------|--------------------------|------------------------------------|
| 0 for RF module | 4 for Phone Line Failure | B for RF Sensor Supervision |
| 1 for CCU Low Battery | 5 for AC Power Failure | C for Fire Trouble |
| 2 for Suspend Operation | 7 for Hardware Trouble | E for RF Sensor Low Battery |
| 3 for Over-current Protection Failure | | |

R Code = 9 is a Sensor/Zone Bypass restore report. The Extension is the number of the zone, just as for code 0. **Group** bypass is indicated by separate bypass reports for each sensor/zone.

R Code = B is an opening report, and the Extension indicates the User number (the number 1 through 15 given to users when an access code is assigned). Users 1 through 9 and 11 (B) through 15 (F) will be represented by their numbers. User 10 and the keyswitch and RF keypad will be represented by a “0” or “A” depending upon the type of receiver.

R Code = C is a Closing report, with the User identified in the same way as for Code B.

R Code = D is a Cancel report, with the User identified in the same way as for Code B.

R Code = E is a System Trouble Restoral. Its extensions are identical to R Code 8 except that they represent a restoral instead of a trouble.

R Code = F is for Other Reports. An extension of **1** is an Automatic Test report.

- | | |
|------------------------------|------------------------------------|
| 2 is a Manual Test report | 4 is a History Buffer Full* report |
| 3 is an Alarm Restore report | |

* History Buffer Full is sent when there is room for 4 more items, and when totally full.

SIA Reporting Data

Our SIA reporting format has this message packet: XX###. The first two characters (XX) are the SIA code which is decoded to the descriptions listed below. The 3 “#” (digits) provide the ability to specify the device or person causing the report (see the “###” table at the bottom of the page).

Table 3-3 SIA Message Format

“XX”	Meaning	Summary
AR	“AC Restoral: AC Power Returned	“Troubles” are ?T, “Bypasses” are ?B, “Unbypasses” are ?U, and Alarms” are ?A where the ? is any of the letters below. Example: FT = Fire Trouble, FB = Fire Bypass, BA = Burglar Alarm. B = “Burglar:” Entry/Exit, Perimeter, interior, 24-Hour, Day Zone E = “Equipment:” Keypad and Panel (CCU) F = “Fire” H = “Holdup:” Silent Panic M = “Medical:” Emergency P = “Panic” R = “Restoral” T = “Tamper” U = “Undefined:” Non-alarm, Environmental, Trouble Category Keyswitch, Auxiliary 1 or 2
AT	“AC Trouble:” AC Power Fail	
BA	“Burglary Alarm:” Entry/Exit, Perimeter, Interior, 24-Hour, or Day Zone	
BU	“Burglary Unbypass:”	
CL	“Closing:”	
CF	“Closing, Forced:” w/ bypass	
ER	“Equipment Restoral:” Keypad and CCU	
FA	“Fire Alarm:” Fire Zone	
FU	“Fire Unbypass”	
FT	“Fire Trouble”	
HA	“Holdup Alarm:” Silent Panic	
HU	“Holdup Unbypass:” Silent Panic	
LR	“Line Restoral:” Phone Line	
LT	“Line Trouble”	
MA	“Medical Alarm:” Emergency Zone	
MU	“Medical Unbypass”	
OP	“Opening Report”	
OR	“Opening, Reset Alarm”	
PA	“Panic Alarm:” Audible Panic	
PU	“Panic Unbypass”	
RP	Test: Automatic	
RX	Test: Manual	
TA	“Tamper Alarm”	
TU	“Tamper Unbypass”	
UA	“Undefined Alarm:” Environmental, Auxiliary 1 or 2, Trouble Category	
UR	“Undefined Restoral”	
UT	“Undefined Trouble:” RF sensor Supervision, Hardwire Loop Supervision	
uu	“Undefined Unbypass;” Restoral-Environmental, Auxiliary 1 or 2, Trouble Category	
XT	“Transmitter Trouble:” RF Sensor, Low Battery	
XR	“Transmitter Restoral:” Battery Okay	
YR	“System Battery:” CCU, Battery Restoral	
YT	“System Battery:” Low Battery	

###: Up to 3 digits are sent, unnecessary zeros are suppressed.

Numbers I-I 12 correspond to sensor numbers (from Installer Programming Fn#511)

Numbers 113-120 correspond to keypads 1 to 8 (from Installer Programming Fn#821)

Numbers 121-13.5 correspond to User Numbers 1 to 15 (installer Programming Fn#811)

Number 136 signifies the CCU (panel)

Number 137 signifies the CCU’s RF receiver module

Number 139 signifies the remote PC computer

Number 142 signifies History Buffer Full

Receiver Format 419

This format uses tones to represent the numbers O-F (in hex, representing 0 through sixteen in decimal). There are 13 numbers sent in a set (4+9) representing one single occurrence. The position of the number (first 4, next group of 8, or last in the set) determines what *kind* of information it contains; then the number itself decodes into a specific message. General format-AAAA ZZZZ ZZZZ R where:

AAAA (the "4" in 4/9) represents the account code

ZZZZ ZZZZ usually represents 8 channels/Categories, with each "position" representing a different zone; the channels are the same as those defined for the Adjunct Communicator module:

1st position = Intrusion, Perimeter	5th pos'n = Fire
2nd position = Intrusion, Interior	6th pos'n = Emergency
3rd position = Silent Panic	7th pos'n = Environmental, Aux, or Trouble Category
4th position = Audible Panic	8th pos'n = Keypad, Non-Alarm

Any of five numbers can go into each of these eight positions. Their meanings:

1 reporting a new event	2 reporting a new OPEN for Open/Close accounts
3 reporting a new Restoral	4 reporting a new CLOSE for Open/Close accounts
5 reporting normal status	

Note that the first place (ZZZZ ZZZZ) will represent the User ID when this information is required; the ninth digit "R" determines when this must happen.

R is the 9th digit, it provides this report information and modifies the previous 8:

If R=1 a Duress report	1234 1555 5555 1 = account 1234, new Duress occurrence,
If R=2 Opening report	3344 8222 2222 2 = account 3344, User #1 1 ("B"=1 1), Opening
If R=3 Zone Bypass report	1234 5555 5515 3 = zone 7 (envrn/aux/trbl zone), bypassed (a "3" instead of a "1" in the Zone position = Un-bypass/restore)
If R=4 Closing report	3344 C444 4444 4 = account 3344, User 12 ("C"=12), Closing
If R=5 Zone Trouble (suprvs'n or battery)	3434 5555 1555 5 = account 3434, Trouble in Fire zone
If R=6, and a "1" in specific positions in the ZZZZ ZZZZ (a "3" in those positions, indicates restoral):	1555 5555 = AC Loss 5155 5555 = CCU Low Battery 5555 5155 = Phone Line Fail 5515 5555 = System Trouble 5555 5515 = History Buffer Full* (suspend operation, or overcurrent protection) 3555 5555 = AC Restore 5355 5555 = Panel (CCU) Battery Restore
If R=7, Zone Alarm	2468 5555 1555 7 = account 2468, Fire , Alarm 2468 3333 3335 7 = account 2468, Alarm Cancel** 2468 5555 5553 7 = account 2468, Alarm Restoral** 1776 5555 5555 9 = account 1776, Test Report

* History Buffer Full is issued twice, once when space is left for 4 more reports and once when totally full.

** Restorals and Cancels are not specific, and do not use the 8 "Z" positions to signify a Category.

Receiver Compatibility

The following table cross-references three items-Message Format, Receiver Type, and acceptable Receiver Formats-that the 8300 could use to communicate with the receiver. Use the table to anticipate which Message Format and Receiver Format you might select in order to communicate with a monitoring service's Receiver Type.

Table 3-4 Compatibility with Commonly Used Monitoring Service Receivers

RECEIVER FORMATS VERSUS RECEIVER TYPE AND MESSAGE FORMAT

Rcvr Type	Message Format						
	3/1	3/1E	4/1	4/1E	4/2	4/9	Full
Ademco 660	SB	SB					
Ademco 685*	A,B,SC14	A,B,SC14	A,B	A,B	A,B, DTMF		
Franklin	SA						
Osborne-Hoffman Model I	A,B	A,B	A,B	A,B	A,B DTMF		
Osborne-Hoffman Model II*	A,B,SC23	A,B,SC23	A,B,SC23	A,B,SC23	A,B DTMF	SIA	
Radionics 6000	A,B,SC14	A,B,SC14					
Radionics6500*	A,B,SC14	A,B,SC14	A,B,SC14	A,B,SC14	A,B		
Sescoa3240	SA						
Sescoa 3210	SA						
S.K.8510/20	B	B	B				
S.K.9000*	A,B,SC14	A,B,SC14	A,B,	A,B	A,B SIA		

*= Verified as compatible with 8300 by Underwriters Laboratories.

=====Key to Symbols =====

SA=SLOW A (10pps/2300Hz)	DTMF
FA=FAST A (20pps/2300Hz)	
["A" = SA & FA]	SC14 = SUM CHECK 1400Hz
SB= SLOW B (10pps/1400Hz)	SC23 = SUM CHECK 2300Hz
FB= FAST B (20pps/1400Hz)	[SC = SC14 & SC23]
["B" = SB & FB]	

Note that a receiver may NOT allow reception of all Receiver Formats at one time, so you should check with the monitoring service to verify that their setup will allow the Receiver Format you expect to select.

Start-Up, Testing, and Troubleshooting

4

Initial Testing

The following procedures are to aid in testing your new installation. These tools will be very helpful in establishing the electrical operability of the system. All of these tests are to be entered via installer programming from the OFF Level of Protection.

Siren Test

From the "Function Number" menu, enter #011; it will allow you to turn the sirens on and off from any Display Control Keypad. Once in Fn#011, press "1" and [SELECT] and siren #1 should turn on. Press "2" and [SELECT] and siren #2 should turn on. Press "0" and [SELECT] to turn off the siren(s). After turning the siren(s) off, the system returns to the "Function Number" menu.

Relay Test

In the same manner, select programming function 012; it will test the relays, just as Fn#011 tested the sirens. Again, "1" and "2" plus [SELECT] will energize the relays, "0" and [SELECT] will de-energize them.

X-10 Test

The X-10 test also works in a similar manner from Fn#013 to turn on and off up to 8 of the X-10 receiver units. (Make sure that the X-10 option is installed in the CCU and that it and the receiver units are set to the same house code.) Press any number from 1 to 8 and [SELECT] to turn on the receiver with the same code. Press "0" and [SELECT] to turn all units off.

Verification Test

You can only use the Verification Test from the OFF Level of Protection. The Verification Test is initiated through either the User Test Menu (9) or Installer Programming (Fn#014). Differences between the User and the Installer tests are listed later in this section. The keypad used to initiate the Verification Test becomes “dedicated” to the test and will serve no other function during the test. The Verification Test mode is like a Level of Protection; but in this level, no alarms are ever generated. The other keypads are not allowed to perform any programming, but can be used as telephone or intercom.

Press [SELECT] once after reaching the VERIFY TEST message; the keypad will display the message “Nothing In List.” After 10 minutes of inactivity (no sensors violated and no keypad operation), the system will leave the Verification Test mode and return to the OFF level of protection.

For the test you will violate each and every sensor. Each violation will cause three things to happen:

1. All wired keypads will sound, to indicate that the violation was noted.
2. The information will be placed in a special 64-event memory buffer in the CCU.
3. The keypad displays will show the violated sensor data.

[The “items” which follow refer to the steps listed here.]

Item 1:

The sound will be a loud 1/2-second beep for all hardwired sensors. Wireless sensors will cause three beeps under normal circumstances with a “good” signal strength; if the signal strength is only “fair” the sound will be only two beeps; this is not considered acceptable, and the sensor must be repositioned for better communication.

Display

84 UPSTRS SMOKES
3GOOD . . . < >>

Explanations

(sensor description, put in the sensor number for your convenience) (*response) (next item) (back up) (exit)

* The response will be “1 HWIRE” for a hardwire sensor, “2FAIR” for wireless sensor with marginal signal strength, and “3GOOD” for wireless sensor with good signal strength.

Item 2:

The information is stored in an event buffer so that you can complete the testing of a group (or all) of the sensors and then check the information against your list, from the keypad. The CCU buffer will hold up to 64 sensor violations, then will begin to drop the oldest piece of data and replace it with the newest. In areas with more than 64 devices, you will need to select a specific area for testing, and move to another when the first is completed. In order to empty the event buffer, leave the programming mode and go to the Users Status Menu, then return to the Verification Test mode.

Item 3:

The keypad display will show the descriptor for the last sensor violated, with the response below it showing the type of response the sensor generated. To view the previous sensors in order from last to first, select the ellipse (...) just as explained in the User’s Manual programming section. Each time you select the ellipse, the display will move back one more sensor, until all violated sensors have been viewed, then the list will “wrap around” back to the beginning again.

To Exit the Verification Test:

Notice the two arrow signs showing on the display. Selecting the single arrow (use [NEXT] to move the flashing highlight, press [SELECT] when the arrow is highlighted) moves you back to the "Function Number" portion of Installer Programming; selecting the double arrow moves you back to the Status Menu (1 on the user's Menu Tree).

How the User's Verification Test Is Different from the Installer's:

The User's test includes less information. In it, wireless and hardwired sensors generate the same audible response-one beep. Because of this, no number is required on the display, and none is created. Selecting the single arrow will cause you to move to the Security Menu (6 on the user's Menu Tree).

Verification Test Symptoms and Causes:

These are the probable occurrences resulting from the Verification Test.

1. System won't respond to a particular sensor.
 - The sensor has not been "turned on" in the CCU (Fn#519)
 - The sensor itself has been programmed with the wrong number
 - The sensor doesn't work (no power, broken)
 - The sensor was not wired correctly
 - Wrong loop speed programmed (Fn#516) for (hardwired) sensor
 - Wireless sensor signal not received (interference, blocked, weak battery, wrong number in DIP switches, CCU's Wireless module not installed/plugged in)
2. Wrong sensor(s) reported on display.
 - Either the sensor or the system is programmed incorrectly
 - Note that the system reports the Last

sensor, then the next-to-last, in order up to the first; then it repeats the cycle, if you keep selecting the ellipse.

3. All wireless sensors seem weak.
 - CCU enclosure door left open, seriously affecting reception.
 - CCU wiring not kept to the bottom of enclosure, away from wireless module.
 - Noisy environment (electronic noise) prevents communication.
4. Only two beeps on wireless sensor.
 - Battery low in sensor
 - Installation problems, review wireless installation instructions
5. System jumped out of the Test function.
 - After 10 minutes of inactivity (no activations, no keypresses), the system will return to the prior Level of protection. This is to avoid having the system left in the test mode accidentally.

Troubleshooting

Startup: Keypads won't work

If there is power to the keypad (shown by LED's or Display) but they don't work, it may be due to incorrect connection of Data1 and Data2 lines to any one of the keypads. Check by removing all keypads and reconnecting one-at-a-time to see if any one works properly. If one or more can be connected and will work, continue connecting until you discover which one causes the problem; the wiring of that keypad is likely to be the problem.

Lockup: Can't Get System to Do Anything

The remote possibility exists in any computer-based device that an electrical shock can cause the computer to get "lost" and stop responding. If installation activities should result in lockup, you will have to Reset the system.

NOTE:

Resetting will wipe out any programming you have done, and return ALL of the system's settings to the default. See Chapter 5.

PIR Problem: False Alarms When Coming Home on a Rainy Day

If a customer sometimes comes in and gets an alarm from a PIR that should be a follower, check out this possibility. If the door sensor is set to slow (Fn#516) and the PIR is aimed directly at the door, someone could open the door fast enough to set off the PIR before the door's 400 msec delay is up. This means that the PIR hasn't moved to the follower status and generates an immediate alarm. Changing Fn#516 to fast ("0") should put a stop to this.

Introduction

Certain questions are bound to occur about how the Security System 8300 operates or responds in certain circumstances. The following information deals with some of the most likely questions. Refer to Chapter 3 for discussion of "Function Numbers."

Operations During AC Power Loss

When AC power is interrupted for more than 180 seconds, the CCU can tell the monitoring service (Function Number 315). It also tells the Display Control Center keypads, which immediately reduce unnecessary loading by turning off their display backlighting (20-30 ma each), except during use, and change the yellow "system" LED from steady on to flashing (signifying Trouble); no other accessory power is turned off. The keypads' high-efficiency status LED's are left on to help locate the keypad in the dark and provide information to the user.

The system continues all other operations on battery power as long as the battery voltage remains above 10.1 volts.

The standard CCU battery is a 7 ampere-hour battery and powers the system until its voltage falls to below 10.1 volts. When the battery voltage decreases to below 10.1 volts, the system will suspend operation. At this time, it can report Suspended Operation to the monitoring service (see manual programming Function Number 316, Chapter III) and has the capability to send the 64-event Event History (see manual program Function Number 317) if the monitoring service has an AT&T FSK compatible receivers.

When operation is suspended, all voltage to any circuitry is removed. No voltage is supplied to any accessory device, all microprocessors are off, no system lights are on, and the system will not respond to the Reset button. There will be no response to any events during the time of suspension and the system will not alarm on any violation that occurred during the suspension. The system status and programming, event history, and the clock time at that instant will be retained. However, since the microprocessors are off, neither the date nor the time of day will advance.

When power is returned to the system, it may be necessary to reset the clock (and perhaps the calendar). However, the system will return to

operation in the same status as when it suspended operation-with these possible exceptions.

1. If an X-10 unit was ON, the system will not turn that device ON again at restoration; however, if a siren or relay was still ON when operation was suspended, it will be turned back ON when power is restored.
2. When power is restored, only new violations will be reported to the monitoring service. Prior (before the suspend) violations will be bypassed if the sensor is still violated. Corrected violations that occurred during suspend, like the opening and closing of a door, will not be detected. Suspend-related bypasses will be removed when the Level of Protection is changed by user.
3. Any violations that occur after the return to operation will be treated in a manner consistent with the system's current Level of Protection.
4. Any accessories that depend on System 8300 for power may need attention, depending on their particular requirements.

Keypad Usage

More than one user can be using the keypads at a time, but only one user may Program at one time; others may set Level of Protection, use the intercom, etc., and the CCU will handle the instructions from each user as though that were the only user working at that time, except when the different commands interfere or disagree.

If one user sets the Level of Protection to DAY and another sets it to OFF, the most recent command will eventually be dominant.

If one user calls on the intercom, another user can choose not to answer, can press [NEXT] and perform whatever desired programming even though the other user is trying to call.

Silence (Keypads in the Bedroom)

If a user wishes to have a keypad in a bedroom or office (where chimes, trouble beeps, and other unnecessary sounds are not desired) you have these two options. (1) The dip switch on the back of the keypad (see Chapter 2, "Installation") can be used to cancel non-alarm sounds such as intercom beep, chime, tone, trouble, and pre-alarm (count-down) beeps. (2) The Volume (on the side of the Display Control) or the Chime (on the side of the Control) keypads will cancel the phone ring, intercom beep, chime, tone, and exit pre-alarm beeps (see the table at the keypad installation section of Chapter 2).

NOTE:

Never use the dip switch to silence ALL keypads, since that would mean the loss of the audible Trouble warning.

Of course the Volume control also affects the intercom and telephone volumes.

NOTE:

User can select intercom or phone at a keypad, and still hear the sounds even if the volume control is set all the way down.

Keypad as Telephone

The Display keypad operates as a "half-duplex" telephone. This means that the user can either talk or listen at any instant, but cannot simultaneously do both. It incorporates a noise level sensor that will allow it to ignore (not send) any constant-level noise in its environment. If the system is configured as a pulse-dial system, the user can temporarily convert to touch-tones for bank-by-phone type operations by pressing the star button.

Listen-In Keypad

Only the enhanced Display Control Keypad can be used with the enhanced CCU Main Board. The enhanced CCU Main Board and the enhanced Display Control Keypad provide expanded Listen-Walk-Back capabilities, described in Appendix D Listen-In/Talk-Back. Table 5-1 describes compatibility between the two different versions of the CCU Main Board and the two different Display Control Keypads.

You can identify the enhanced CCU Main Board by locating the sticker described in Figure 5-1. You can identify the enhanced Display Control Keypad by locating the sticker described in Figure 5-2.

Table 5-1. CCU Main Board and Display Control Keypad Compatibility

CCU Main Board	Compatible Keypad
Model 8300 CMP1 without the sticker that is shown in Figure 5-1	Model 8345 Comcode 1056915393 SKU 00865
Model 8300 CMP1 with the sticker that is shown in Figure 5-2	Model 8345 Comcode 106776164 SKU 36010

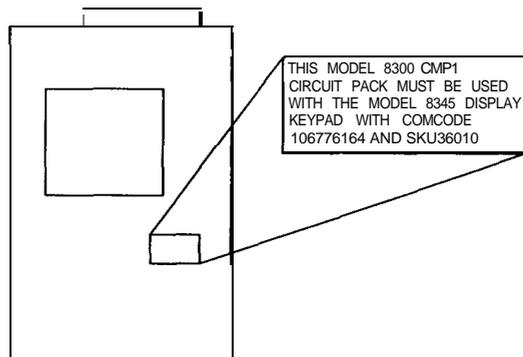


Figure 5-1. CCU Main Board

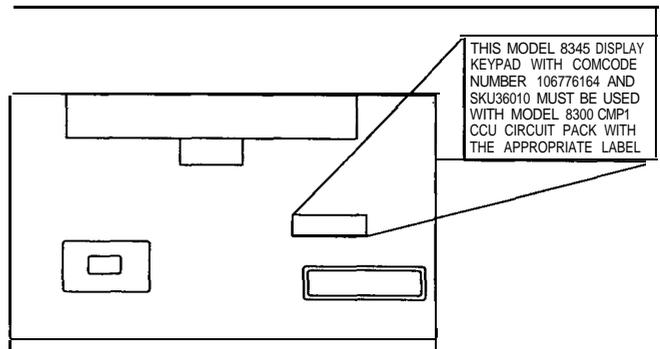


Figure 5-2. Display Control Keypad

Use with the Enhanced CCU Main Board and Display Control Keypad

The enhanced CCU Main Board and the enhanced Display Control Keypad provide expanded Listen-In/Talk-Back capability. Use of the Listen-In/Talk-Back feature with the enhanced CCU Main Board and the enhanced Display Control Keypad is described in Appendix D *Listen-In/Talk-Back*.

Use with the Earlier Version CCU Main Board and Display Control Keypad

The earlier version of the CCU Main Board and the earlier Display Control Keypad provide more limited Listen-In/Talk-Back capability. If the monitoring service supports Listen-In/Talk-Back, you can turn it ON with Fn#236 and 246 (not for use in UL Listed systems). The Listen-In/Talk-Back feature allows bi-directional (either listen or talk at any given moment) phone operation after an alarm has been received, and one-way listen in after a silent panic (duress). Listen-in is active at all Display Control Keypads in the user's system.

The monitoring service has 90 seconds after kiss-off to activate Listen-In/Talk-Back by sending a touch-tone "1" from their phone. Then, the listen-in operation continues for 60 minutes, or until ended by either the user or the service. The service can end the operation by sending a touch-tone "2," and the user can end it by terminating the alarm (changing to the OFF Level of Protection).

Built-in level sensing mutes constant-level noises so that refrigerators, fans, etc. do not drown out other keypads on the premises.

The Alarm Cycle

When a sensor signals the CCU that it has been violated, the CCU determines if that violation should result in an alarm (or cause a chime, tone, or nothing). This is based upon the programming from the function numbers in the 400 and 500 series. If an alarm is called for, the CCU determines if the alarm should be instant or delayed. If the alarm is delayed, the process of calling the monitoring service is also delayed. If the alarm is instant, any local operations and the process of phoning the monitoring service begin immediately. In accordance with its programming, the CCU: activates its relays, signals the X-10 device which (if any) of its switches to activate, activates the siren(s) with the selected cadenced or no-

cadenced power, initiates the selected alarm signals from the keypads, begins the phone reporting process to the monitoring service(s).

Phone reporting process begins with a 0 to 90 second delay before placing the call (Fn#212). Then the system tries to place the call. It waits for the dial tone 1 to 16 seconds (Fn#213) and dials the selected receiver number. If the CCU is successful in phoning in the alarm, the phone process is complete. If the process is not successful (no dial tone, failure at the monitoring service) the system will wait for the retry delay (Fn#215) and then try again. The second try may be on the second phone line (if used, Fn#217 and 114), or may be to the second monitoring service receiver (if used, Fn#114). The system will make a maximum of 5 tries per line, for each receiver.

Local alarms will continue until removed by the user, or siren time-out. In the event of the user removing the alarm, the system may send the monitoring service a restoration (Fn#313, 314).

Resetting the System

Resetting the "system" is actually resetting the CCU's computer. This will erase the system's memory of sensors, keypads, users, and the event history (regardless of current conditions*). This memory loss includes access codes (Installer/ Dealer and User). Upon reset, the system is returned to the factory-set defaults (listed for most data in Chapter 3, all 9's for Installer access code, and 1234 for User access code).

* You cannot reset the system when it is in the Suspend Operation condition. To reset the system, press and release the small Reset button on the CCU Main board (location shown in Figures 2-4 and 2-5).

Remote Arming and Disarming

If you have CCUBOSS and the computer equipment to run it, you have the ability to set a user's Level of Protection from your CCUBOSS computer. This is prohibited for any UL listed systems. Refer to the CCUBOSS manual to use this ability for non-UL systems.

CCU Low Battery Reports

If a system should report a low CCU battery, the battery may not be bad. Both the loss of AC and a long alarm can temporarily drag the battery down long enough for a single test to give a "low" reading. In some instances, a long loss of AC could result in battery damage.

A normal battery should restore to "good" voltage in the time it takes the user to call you. If checked (have user go to Security menu (3) and select "TEST"-this will tell the system to recheck the battery voltage), the Trouble should go away within 4 seconds of performing the Test. If the Test does not eliminate the low voltage Trouble, then the battery is bad or some part of the system has caused it to go low.

Battery Replacement

If a battery is bad, you can replace it without taking any special protective steps (unless there are tamper switches on the enclosure, in which case you would set the system to Test mode

Fn#014 in order to prevent a Tamper call to the monitoring service).

Open the enclosure, disconnect the bad battery, reconnect the new battery. If the system happens to be running the hourly battery test at that time you may get another bad battery Trouble, which you can remove at the keypad, after calling the User's Test option. Remember that, unless the battery is already charged to 100% capacity, the standby time will be shorter than normal. Charge time for a 7 Ahr battery is less than 24 hours.

After battery replacement run the Verification test, check the time, and review access codes, in order to verify that the system's memory is intact.

About Supervision of the Hardwire Loops

End-Of-Line resistors are required in the Security System 8300 hardwire loops. This is true because the system provides a "fault" in addition to Open and Closed conditions. (See Fn#513 in Chapter 3 and "Wiring Data" in Chapter 2).

"Fault" is the shorting of a closed loop or cutting of an open loop. A fault will produce a Trouble. In addition, faulting the following Categories while set to DAY, NIGHT, or AWAY will produce a violation (normally interpreted as an Alarm by the CCU). (Category # in parentheses):

Entry/Exit (1)	Interior Tamper (5)
Perimeter (2)	Day Zone (6)
Interior (3)	Audible Panic (8)
24-Hr/P'rim Tamper(4)	Keyswitch (16)

Fire (Category 10) will produce a Trouble if programmed (Fn#515) as Open loop, or a Violation if programmed as Closed loop.

About Supervision of the Wireless Components

Security System 8300 sensors are supervised so the CCU is alerted if they fail to operate. The hardwired loops have a supervision resistor at the circuit board and another mounted at the end of the hardwire run. The system monitors the voltage across the local resistor and can sense a short or open circuit by the change in this voltage. Depending on the loop type (open or closed), a short will initiate an alarm or supervision trouble, and an open will indicate a supervision trouble or an alarm.

The CCU keeps track of the supervision transmissions of the wireless transmitters (sensor numbers 81 through 112, which send a supervision signal approximately every 3 hours). If the CCU fails to receive a message (supervision or change of state) from any supervised* wireless device during any one period (the period length is 12 hours) a trouble is generated.

* Remember that portable transmitters can be designated as non-supervised (in Fn#517), if that device might be carried out of range.

About Supervision of the Keypads and CCU

The two most intelligent devices in the system supervise each other. Within 200 seconds the CCU will indicate the loss of a keypad (by signaling the remaining keypads with a Trouble report, "Supv Fail, Central Panel").

Also within 200 seconds any keypad will signal a loss of communication link with the CCU, or CCU breakdown, (by a "Keypad Inactive" message on the display and Trouble beeps). The beeps can be quieted by pressing either [SELECT] or [OFF].

About Supervision of Phone Lines

The system provides two different kinds of phone line supervision.

First kind: Function Fn#218 checks the phone line every hour for operating voltage and reports if 12 consecutive tests are negative.

Second kind (phone block monitoring): The interior phone line (or lines, if two lines are used) can be checked for continuity between the CCU and the premises' RJ-31 jack. Note that this is only a supervision of the line as far as the jack, and not a check of the phone service availability, (F&218).

The continuity check is enabled by moving the jumper in the center of the CCU Main board and wiring the phone line and jack in accordance with Figure 2-1 1. Any wire-cut or unplugging will generate an Interior Tamper (Category 5, hardwire zone #10). Note that this requires an 8-line phone cord instead of the normally used 4-line.

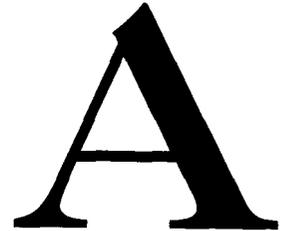
Handling Interruptible Power for Smoke Sensors

See "Hardwired Smoke Detectors" in Chapter 2 for the explanation of low current applications (75 mA) using INT AUX power, and a method of providing a higher current capability for interruptible power. For UL applications, use only the direct (75 mA) method as shown in Figure 2-I 7.

Zones

Refer to Zones in the Glossary.

Wireless Considerations



Since the wireless portion of security is relatively new and there is less standardization in this area, and in order to treat any special considerations that apply only to Security System 8300, this appendix has been created as a “Wireless Information Section.”

This portion of the manual applies only to systems using the wireless sensors and receiver options.

Installation Note

If you might use wireless devices in an installation, always run the system wiring (hardwire zones, keypads, power wiring) away from the wireless module—run these wires to the bottom of the enclosure.

Verifying the Communications Link

Before installing, or even designing, wireless devices into any security system, you should verify that the residence’s radio-wave environment does not prevent communication between the

sensors and the CCU. The system itself provides a way to verify communication using the system’s actual components. Always make sure that the CCU has the wireless module and antenna properly installed, and has the enclosure *door closed*.

NOTE:

In industrial areas there may be more electronic noise during one part of the day than another; if there is some doubt, check during different parts of the day to identify when conditions are worst. (Obviously communications must work in the worst possible conditions.)

Using the Installer Test Mode (Fn#014)

Installer testing requires a Display Control keypad, a CCU with the Wireless option installed, and a Universal Transmitter; the CCU and transmitter must be configured to talk to each other (see “Installing Specific Devices” later in this section of the manual about setting house codes).

Enter the Test mode (Fn#014) as described in the beginning of Chapter 3. The display will show

“VERIFY T” to let you know you are in the right part of the program; press [SELECT] to begin the Test operation. The display will show “NOTHING IN LIST.”

After entering the Test mode, use the following steps to send a signal from the transmitter and evaluate whether that signal reached the CCU with enough strength:

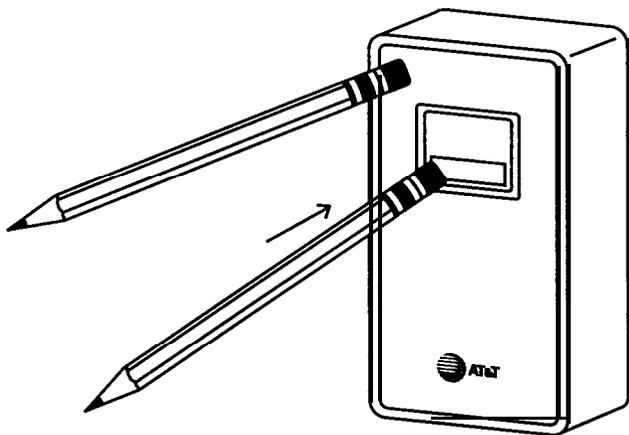


Figure A-1 Installer Testing Link

1. Refer to Figure A-1. Use a long wooden pencil, or other non-metallic device to hold the transmitter in place. You must keep away from the transmitter, since your body can affect the transmission of the radio signals.
2. Use another long wooden pencil to press the transmitter button.
3. The Display Control keypad should sound three beeps to indicate that the signal reception is considered good enough for reliable communications. If the keypad sounds only two beeps, the signal was received, but reception is not good enough; you must take steps to improve the reception. If there is no beep at all, the signal was not recognized at the CCU at all.

4. A two-beep or no-beep response can indicate either: 1) electronic noise is so strong that the signal cannot overcome it, or 2) something on the premises is blocking the signal.
5. When the signal seems to be marginal, the first and easiest step is to move the transmitter slightly (6 inches may be enough). If many sensor positions fail the check, moving the CCU's antenna may help.

The following section “Reception Factors,” discusses reception factors in some depth and may be of some help.

Check communication for every proposed transmitter location, with both the sensor and the CCU positioned as exactly as possible.

Reception Factors

Two major factors affecting clear communication are electronic noise and the presence of large amounts of metal.

“Noise” cannot usually be overcome, but may be avoided if the source is local. Electrical and telephone wiring may *carry* electronic noise, and digital equipment and motors may *generate* the noise. If either the transmitter or the receiver (CCU) antenna is close to wiring, the noise from that wiring can overwhelm the signal just as crowd noise at a sporting event can drown out the announcer. However, you have one advantage in this contest against noise: if you double the distance from the noise (e.g., from 4” to 8” away, or 1 foot to 2 feet) you decrease the effect by 4 times. This proves how important even a small move might be. Typical sources of noise are:

- Computers and Computer Devices
- Premises Power (AC) Wiring
- Neon Lights

- . Other (Cable TV, Intercom) Wiring
- . Electric Motors
- . Key Systems, Business Phone Systems
- . Dimmer Lighting controls
- . Arc Welders

Verify a source by turning it off, if possible, or by moving either it or the System 8300 component.

The second item, metalwork, may have effects that are hard to predict. The frequency of the transmitter was chosen to minimize this problem, but the possibility does exist that larger surfaces of metal will impede the radio waves. Some of the large items to consider are:

- . Foil Wallpaper
- . Stucco Walls (the wire mesh within them)
- . Exterior Walls (foil vapor barrier)
- . Exterior Walls (aluminum siding)

Other, smaller, metal items are not normally consequential, but may occasionally have some effects on wireless communication, especially if devices are placed too close (less than 2 feet), and in direct line with them. Typical items that might warrant consideration are:

- . Metal doors
- . Mirrors (foil backing)
- . Refrigerators
- . Furnaces
- . Large Metal Cabinets
- . Substantial amounts of Air Distribution Ductwork

Options

When having trouble with wireless communications you have these options.

1. Move the transmitter. (One side of a window to the other, one end of the hall to the other)
2. Instead of the wireless sensor (PIR or Smoke) use a regular sensor and wire its contacts to the Universal Transmitter, which may be mounted in a more desirable location (the sensor contacts will not be supervised).
3. Move the CCU's remote antenna coupling assembly.
4. See if the configuration of the premises can be changed (move a cabinet, etc.).
5. Use a hardwired device.

Installing Wireless Components

This portion of the appendix is the wireless addition to supplement the "Installing Specific Devices" portion of Chapter 2. This portion includes the receiver (Wireless Module), the Remote Antenna Coupling Unit, the sensor/transmitters (Smoke, PIR, and Universal), and the wireless Remote/Transmitter keypad.

Wireless Module and Antenna

Model 8325

Description: The wireless module is only required if wireless sensors or the wireless keypad are being used. It is the receiver that fits inside the CCU and relays the wireless signals to the CCU circuitry.

Mount/Install: Refer to Figure A-2. Before you mount the CCU, consider the Appendix information concerning the choice of location for wireless devices.

NOTE:

It is much easier to set the housecode (transmitter settings must match this wireless module's settings) before mounting the module.

1. Set the DIP switches to the housecode (see below). If you are planning on using the Remote Antenna Coupling Unit (Model 8326) set the power jumper to ON now.
2. Install the antenna on the module.
3. Knock out the CCU antenna hole.
4. Install the grommet in the antenna hole.
5. Slide the antenna up through the antenna hole and mount the module on the studs. The base of the antenna should fit into the grommet so that the entire antenna extends from the CCU enclosure.
6. Tighten the nuts holding the module.
7. Use the self-tapping screw to mount the 5-Foot Counterpoise on the outside of the lower left corner of the enclosure.

NOTE:

This counterpoise wire is a necessary balance for the wireless system's antenna. Do not cut, coil, or bend the wire back upon itself; however, any reasonably straight configuration will be acceptable (for instance, you could run the Counterpoise down a wall, turn and run the rest horizontally along a baseboard).

Avoid having the Counterpoise next to other wires, pipes, or metal, since that would hurt reception.

The Counterpoise is not required if the Remote Antenna Coupling Unit (Model 8326) is used.

Settings/Connections: Set the module's dip switches for the selected house code; this same house code must be set into all of the system's wireless transmitters' dip switches. After mounting, connect the module's cable to the Main board in the location shown in the figure; the plug will fit only one way.

Data: Frequency: 40.68 MHz Power requirements: 12 VDC, 20 ma, supplied by the CCU.

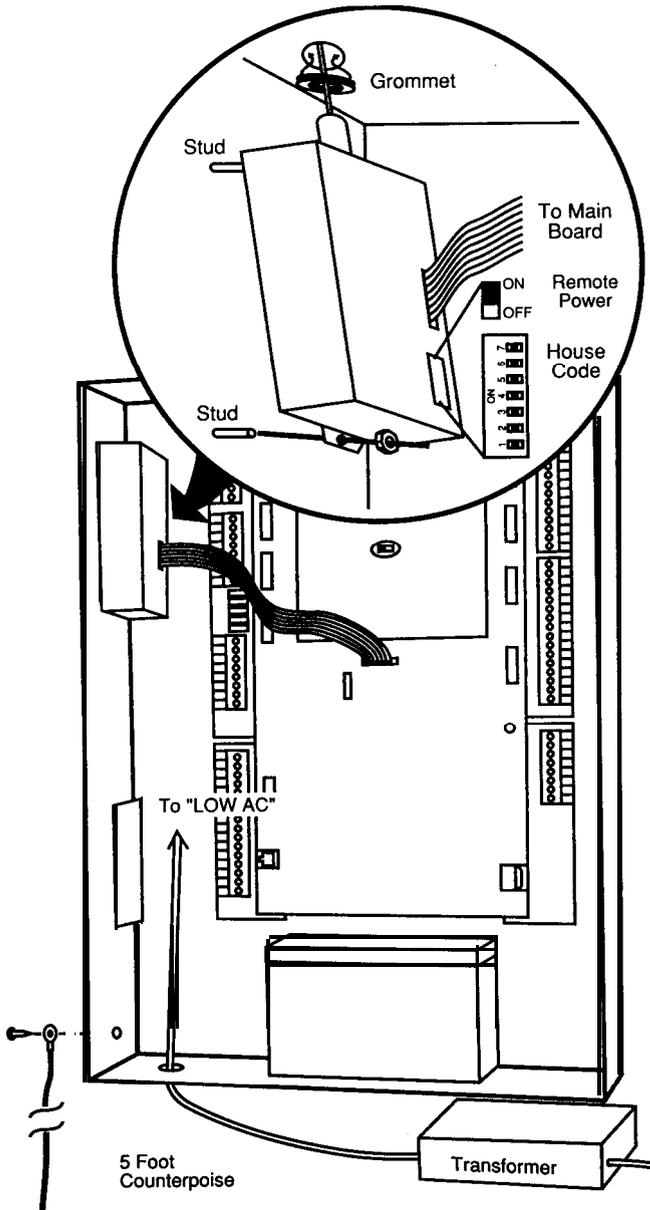


Figure A-2 Wireless Module

Remote Antenna Coupling Unit

Model 8326

Description: When the CCU-mounted antenna does not seem to provide optimum reception (or if the antenna will not fit above the CCU), you may choose to use this option to reposition the antenna and improve reception. It comes with an 8 foot cable and ferrite bead (required for optimum antenna performance); you can add another 25 feet of RG-58 cable (BNC connectors) if needed. See Figure A-3.

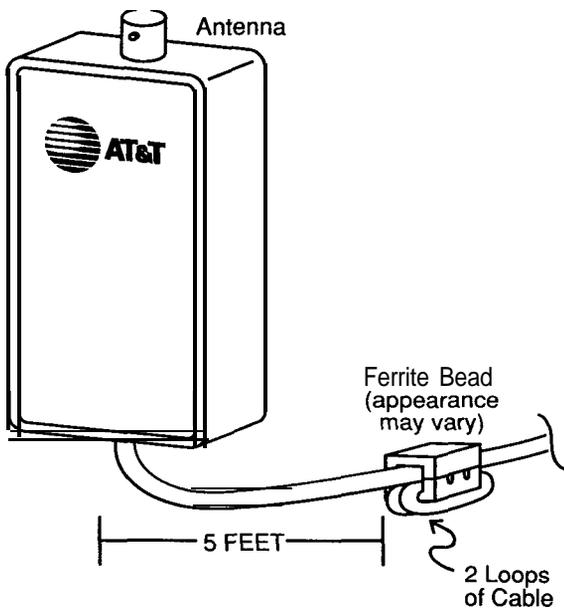


Figure A-3 Remote Antenna Coupling Unit

Mount/Install: Mount the Remote Unit enclosure at the desired location (at least 5 feet from the CCU). The antenna can point in any direction. To mount the enclosure, press up on the tab at the bottom and open the cover. Mount the back using the two holes, and snap the cover back into place. Do not use in applications where the ambient temperature will go below 40°F.

Settings/Connections: You will probably wish to loosen the nuts holding the Wireless Module, in order to perform the following steps. If you planned on using this Remote, some of the following CCU steps may already be completed.

1. In the CCU, set the Wireless Module's Remote Power jumper to On (up). Remove the antenna from the Wireless Module in the CCU, if it was mounted there.
2. If you need additional cable, obtain up to 25 feet of RG-58 cable with BNC connectors (one of each gender). Connect the extra cable to the Remote Unit's cable.
3. Slide the rubber grommet over CCU-end of the cable. Connect that end of the cable through the antenna knockout hole in the CCU enclosure, to the Wireless Module's antenna connection. Put the grommet in the hole to protect the cable.
4. Remount the Wireless Module in place.
5. Attach the antenna (provided with the Wireless Module) to the top of the Coupling Unit enclosure.

NOTE:

Using this Remote Unit means that you do not have to use the Counterpoise as described on the previous page.

Data: Use only with Security System 8300. Uses 5VDC and 5 mA.

Wireless Remote/Transmitter Keypad

Model 8440

Description: This transmitter allows the user to select 3 of the 4 Levels of Protection that are normally available, and accept hardwired sensor input from its own loop (if used), which it then relays to the CCU. With no loop, and with wireless supervision off (Fn#517) the unit can be used as a portable keypad and removed from the premises. (Program the zone classification as Audible Panic.)

NOTE:

Do not use the Model 8400 keypad transmitter from the previous (system 8000) AT&T security system. This device does not mate properly with the system 8300.

Operation: The keypad has its own 3-digit access code which, if keyed in backwards, sends a silent alarm.

NOTE:

This keypad is not locked out by the multi-try lockout (Fn#118). The two red-dot buttons initiate a POLICE alarm if pressed and held until the answering beep. The pressing the OPEN button causes the transmitter to ignore violations in its own loop for 40 seconds.

The 3 alarm levels of OFF, AWAY, and HOME correspond to OFF, AWAY, and DAY-(HOME translates to DAY, and there is no way to select NIGHT from the remote).

The unique sounds for this unit are discussed in the User's Manual.

Mount/Install:

1. Press the tab on the back to snap the back off the unit.
2. Remove the snap caps or spade lugs to separate the back from the unit
3. Route sensor wires (if used) through backplate and mount the plate with 2 screws in the oblong holes on the back.
4. Wire the sensor loop (if used) to the black and green terminals and reattach the snap caps or spade lugs according to the marked color code.

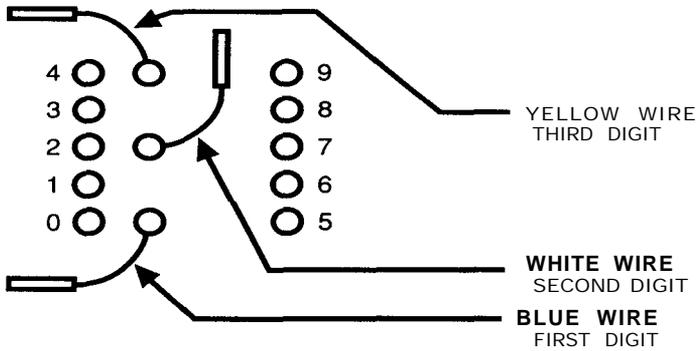
NOTE:

The black and red terminals have a jumper. The jumper can be removed and replaced by a closed loop, which will initiate the same signal as the tamper switch.

Settings/Connections: Refer to Figure A-4. The circled numbers on the figure correspond to the numbered steps which follow.

1. Set the 3-digit user Access Code, using the three wires in the upper corner of the transmitter. This one Access Code is used by all persons for this transmitter. User can enter this code backwards (e.g., 3-2-1 instead of 1-2-3) to enter a duress code.
2. Set the system house code to match that of the Wireless Receiver Module. The position of switch 8 in that set does not matter.
3. The Transmitter is identified by a wireless sensor number (81 through 112 in Fn#511). Set this number using the table in Figure A-4.
4. Set the sensor loop switch (#6) to match the type of loop employed with the transmitter (if any). If there is no sensor loop attached (e.g., for use as a portable unit), set the switch to open loop.
5. Set switch #7 OFF if the attached sensor is a magnetic type whose every switch change should be reported. Set the switch ON to limit transmissions to no more than 1 every 2-1/2 minutes (for a PIR or other repeating device).
6. Select HIGH or LOW security for the "OPEN" function, using switch #8. HIGH requires that the access code be entered before you can use the OPEN feature. The feature provides a 40 second time window in which you could (for instance) pass through a door protected by the transmitter's loop.

TO SET THE SECURITY CODE, CONNECT THE BLUE WIRE TO THE PIN CORRESPONDING TO THE FIRST DIGIT FOLLOWED BY THE WHITE WIRE TO THE SECOND AND THE YELLOW WIRE TO THE THIRD. NOTE: THE WIRE COLORS AND IN ALPHABETICAL ORDER.



Sensor Number	ID Switch Settings				
	1	2	3	4	5
81	ON	ON	ON	ON	ON
82	OFF	ON	ON	ON	ON
83	ON	OFF	ON	ON	ON
84	OFF	OFF	ON	ON	ON
85	ON	ON	OFF	ON	ON
86	OFF	ON	OFF	ON	ON
87	ON	OFF	OFF	ON	ON
88	OFF	OFF	OFF	ON	ON
89	ON	ON	ON	OFF	ON
90	OFF	ON	ON	OFF	ON
91	ON	OFF	ON	OFF	ON
92	OFF	OFF	ON	OFF	ON
93	ON	ON	OFF	OFF	ON
94	OFF	ON	OFF	OFF	ON
95	ON	OFF	OFF	OFF	ON
96	OFF	OFF	OFF	OFF	ON
97	ON	ON	ON	ON	OFF
98	OFF	ON	ON	ON	OFF
99	ON	OFF	ON	ON	OFF
100	OFF	OFF	ON	ON	OFF
101	ON	ON	OFF	ON	OFF
102	OFF	ON	OFF	ON	OFF
103	ON	OFF	OFF	ON	OFF
104	OFF	OFF	OFF	ON	OFF
105	ON	ON	ON	OFF	OFF
106	OFF	ON	ON	OFF	OFF
107	ON	OFF	ON	OFF	OFF
108	OFF	OFF	ON	OFF	OFF
109	ON	ON	OFF	OFF	OFF
110	OFF	ON	OFF	OFF	OFF
111	ON	OFF	OFF	OFF	OFF
112	OFF	OFF	OFF	OFF	OFF

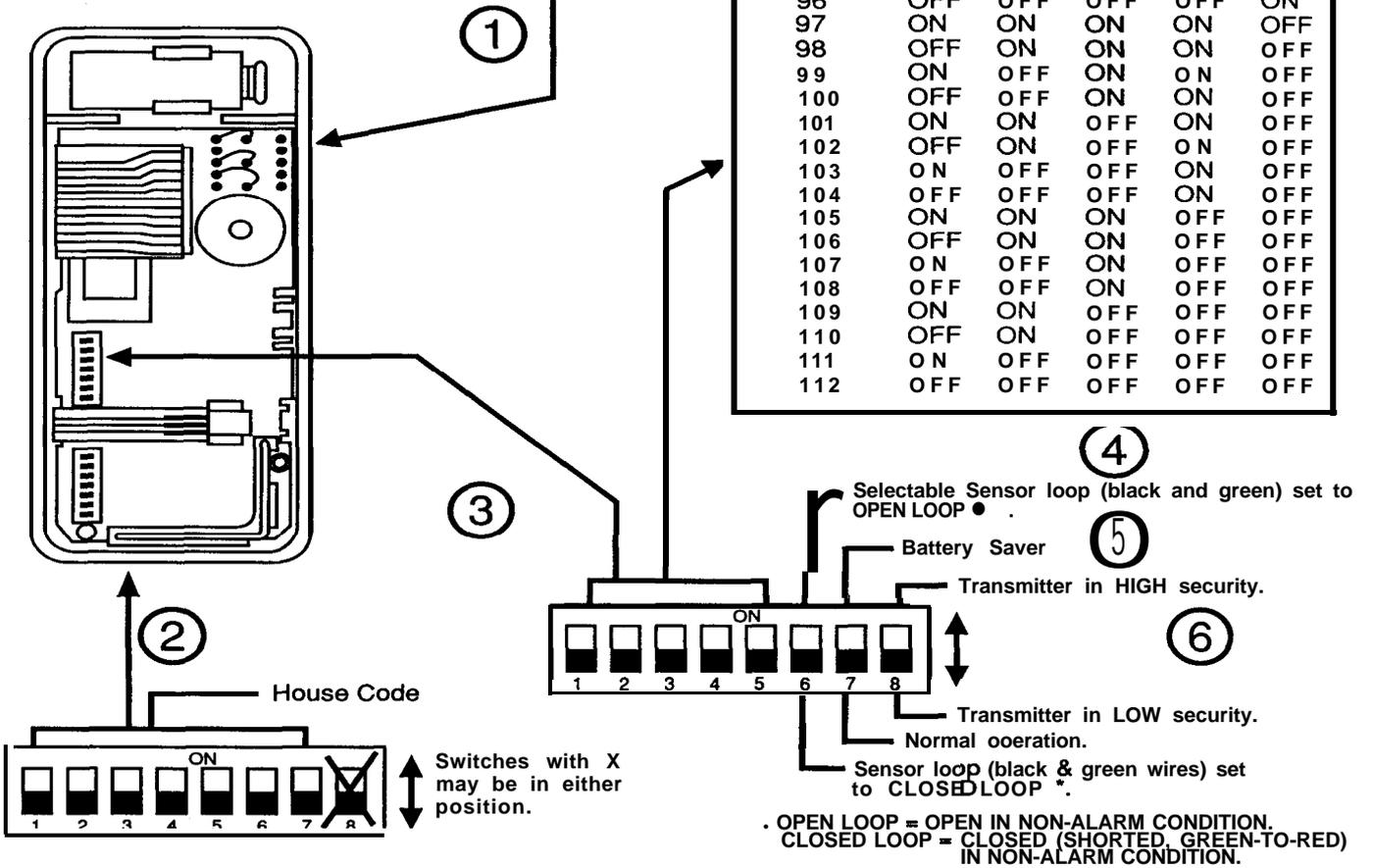


Figure A-4 Remote Transmitter

Universal Transmitter

Model 8240

Description: The Universal Transmitter accepts a single sensor (open or closed) loop that can be used for a fire, environmental, intrusion, or other application, and can act as a personal (medical, panic) transmitter. It has a built-in tamper switch, and an optional battery saver.

An optional backplate provides better protection if the transmitter is being used as a personal portable unit.

A button on the front of the transmitter can be set to either:

- always produce an audible panic alarm, or
- produce the alarm programmed for the **sensor loop in function #513, if the sensor loop is active at the time, depending on whether it is in the OFF, DAY, NIGHT or AWAY mode.**

The transmitter button must be held for 2 seconds to activate.

Mount/Install:

1. Press the tab on the back to snap the back off the unit.
2. Remove the snap caps or spade lugs to separate the back from the unit.

If the unit is to be used as a personal portable unit, skip steps 3 and 4. Proceed to Settings/Connections.

3. **If the Unit is to be used with a sensor,** route sensor wires through the backplate and mount the plate with 2 screws in the oblong holes on the back.
4. Wire the sensor loop (if used) to the black and green terminals and reattach the snap caps or spade lugs according to the marked color code. Proceed to Settings/Connections.

Settings/Connections: Refer to Figure A-5. The circled numbers refer to the steps which follow.

1. Set the system house code on the short set of dip switches to match that of the Wireless Receiver Module.
2. Set the Sensor number using switches 1 through 5 on the long set of dip switches. Use the ID Switch Settings table provided with the figure.
3. If the unit is to be used with a sensor, set switch 6 to ON for an open loop or OFF for a closed loop.
4. Turn the battery saver ON or OFF using switch 7. Note that switches 10 and 11 must be ON for all functions of the transmitter. Table A-I, Universal Transmitter: Battery Saver/Push-Button Functions, on page A-8b, shows the available settings.

If you are using the universal transmitter with a contact sensor **and you want the transmitter to send a signal each time the sensor is tripped, set switch 7 to OFF.** The transmitter then responds each time the sensor is tripped. Use this setting routinely.

If you are using the universal transmitter with a contact sensor and you do NOT want the transmitter to send a signal each time the sensor is tripped, set switch 7 to ON. Use this setting with a contact sensor for special circumstances only.

For example, a business might have a contact sensor protecting a door and wired to a universal transmitter. Every time the door is opened the transmitter sends a signal to the CCU. If this door is opened frequently, the transmitter's battery will not last long. In this case, it would be best to use the battery saver and set switch 7 to ON.

NOTE:
Switches 8 and 12 have no effect.

If the unit is to be used as a personal portable unit and perhaps removed from the premises, make sure the CCU is programmed for UNSupervised operation using function #517.

- Set switches 9, 10 and 11 to determine how the transmitter's push-button will function. Table A-I, Universal Transmitter: Battery Saver/Push-Button Functions shows the available settings.

Table A-I. Universal Transmitter: Battery Saver/Push-Button Functions

Condition of Universal Transmitter	Switch Settings					
	7	8	9	10	11	12
Contact sensor(s) attached Battery saver OFF Button produces 24-hour audible (intrusion) panic	OFF	X	ON	DIP switches 10 and 11 should always be placed in the ON (UP) position		X
Contact sensor(s) attached Battery saver ON Button produces 24-hour audible (intrusion) panic	ON	X	ON			X
Contact sensor(s) attached Battery saver OFF Button produces response of loop (see Note 1)	OFF	X	OFF			X
Contact sensor(s) attached Battery saver ON Button produces response of loop (see Note 1)	ON	X	OFF			X
Personal/portable use Button produces audible (intrusion) panic (see Note 2)	X	X	ON			X
Personal/portable use Button produces response of programmed function (see Note 3)	x	x	OFF			X
Contact sensor(s) attached Button completely disabled	It is not possible to completely disable the transmitter's panic button in System 8300 applications.					

NOTE 1:

When switch 9 is in the OFF (DOWN) position, the universal transmitter's panic button produces the same condition as a violated sensor loop in the same transmitter. Thus, pressing the button causes an alarm corresponding to the sensor/zone category programmed for the transmitter in function #513. In addition, the alarm occurs only if the transmitter's sensor/zone category is in an armed mode when the button is depressed. Consult function #411 through 414 to determine how the chosen sensor/zone category performs in OFF, DAY, NIGHT, and AWAY.

NOTE 2:

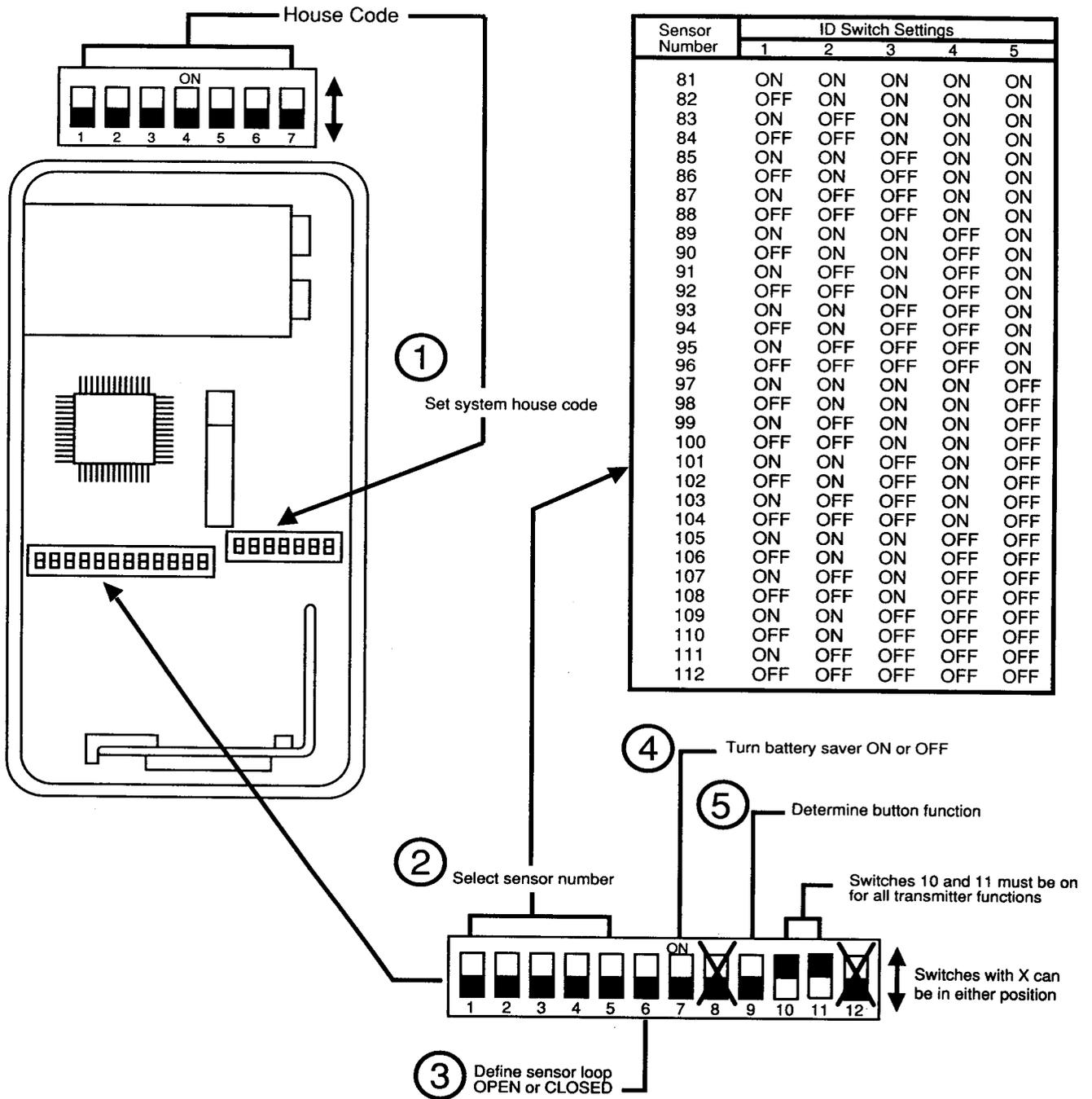
The panic button in any universal transmitter can be programmed to produce a 24-hour audible (intrusion) panic if switches 9, 10, and 11 are in the ON (UP) position. Programmed in this way, the transmitter's button produces the audible panic

without regard to the transmitter's selected sensor/zone category as programmed in function #513.

NOTE 3:

To program a personal/portable universal transmitter so its button produces either a 24-hour fire, emergency (medical), or environmental panic, follow these steps:

- Program the appropriate transmitter sensor/zone classification (such as fire, emergency (medical), or environmental) in function #513.
- Program "instant" as the response for the selected category in each of the action matrix designations (OFF, DAY, NIGHT, and AWAY) in function #411 through 414.
- Place switch 9 in the OFF (DOWN) position.



NOTE: See Table A-1, Universal Transmitter: Battery Saver/Push-Button Functions, on page A-8b, for available transmitter switch settings.

Figure A-5 Universal Transmitter

Smoke Detector

Model 8520

Description: The detector is a supervised, integrated photoelectric smoke detector and wireless transmitter. When it detects smoke, it sounds its built-in horn and transmits an alarm to the CCU. It will sound a low battery horn then begin to transmit a low battery signal to the CCU, when its battery begins to get weak.

A button in the face can be used to test the unit; this is the recommended way of testing.

Mount/Install:

1. Push the "Press" button and swing the bracket away from the sensor.
2. Mount the bracket in the desired location. For wall mounting, make sure that the UP arrow on the bracket is correctly oriented.

3. Before mounting, set the switches, below.
4. Install 2 fresh Duracell (only) MN1604 alkaline batteries.
5. Snap the detector into place.

Settings/Connections: Refer to Figure A-6. The circled numbers refer to the steps below.

1. Put a flat screwdriver blade into the slot on the back and use it to open the smoke detector.
2. Set the switches for the house code (the same as the house code on the Wireless Receiver Module).
3. Set the switches for the transmitter sensor number. Note that the three switches can only be used to set the numbers 105 through 112; other numbers cannot be used for these smoke detectors.
4. Snap closed the cover and mount the detector on the backplate.

Sensor Number	ID Switch Settings		
	1	2	3
105	ON	ON	ON
106	OFF	ON	ON
107	ON	OFF	ON
108	OFF	OFF	ON
109	ON	ON	OFF
110	OFF	ON	OFF
111	ON	OFF	OFF
112	OFF	OFF	OFF

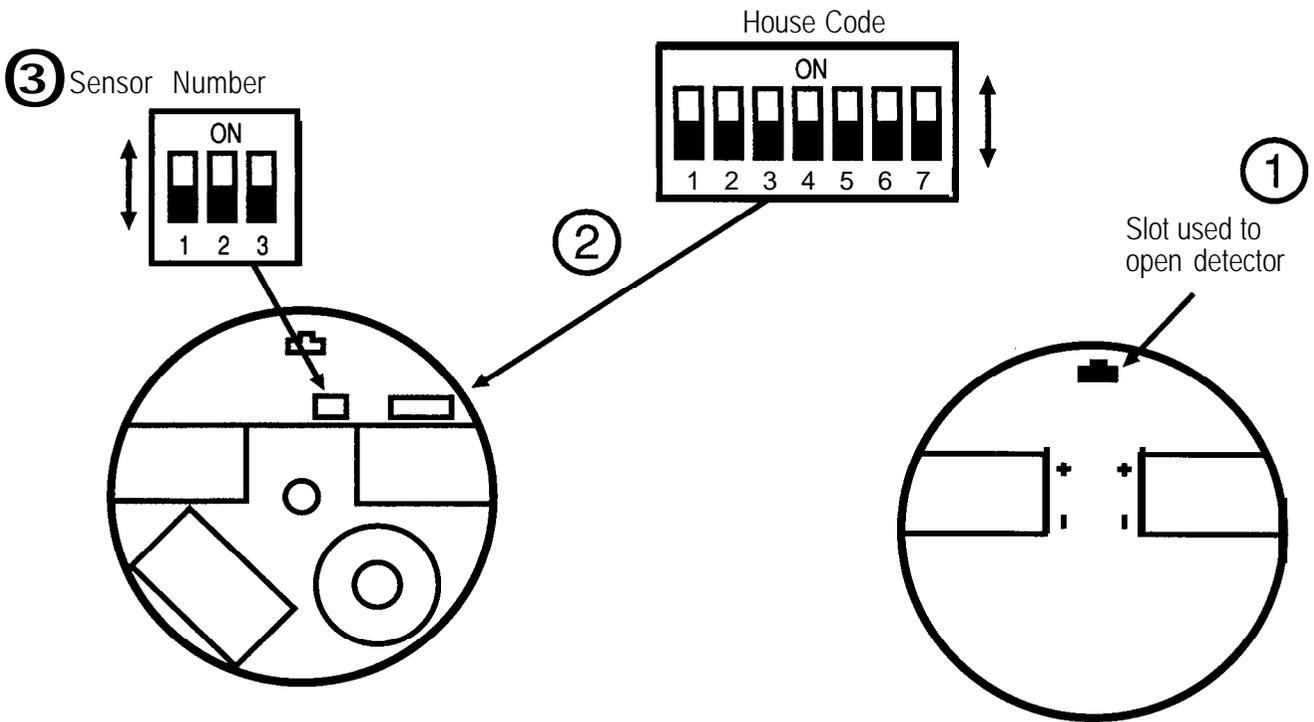


Figure A-6 Smoke Detector (Model 8520)

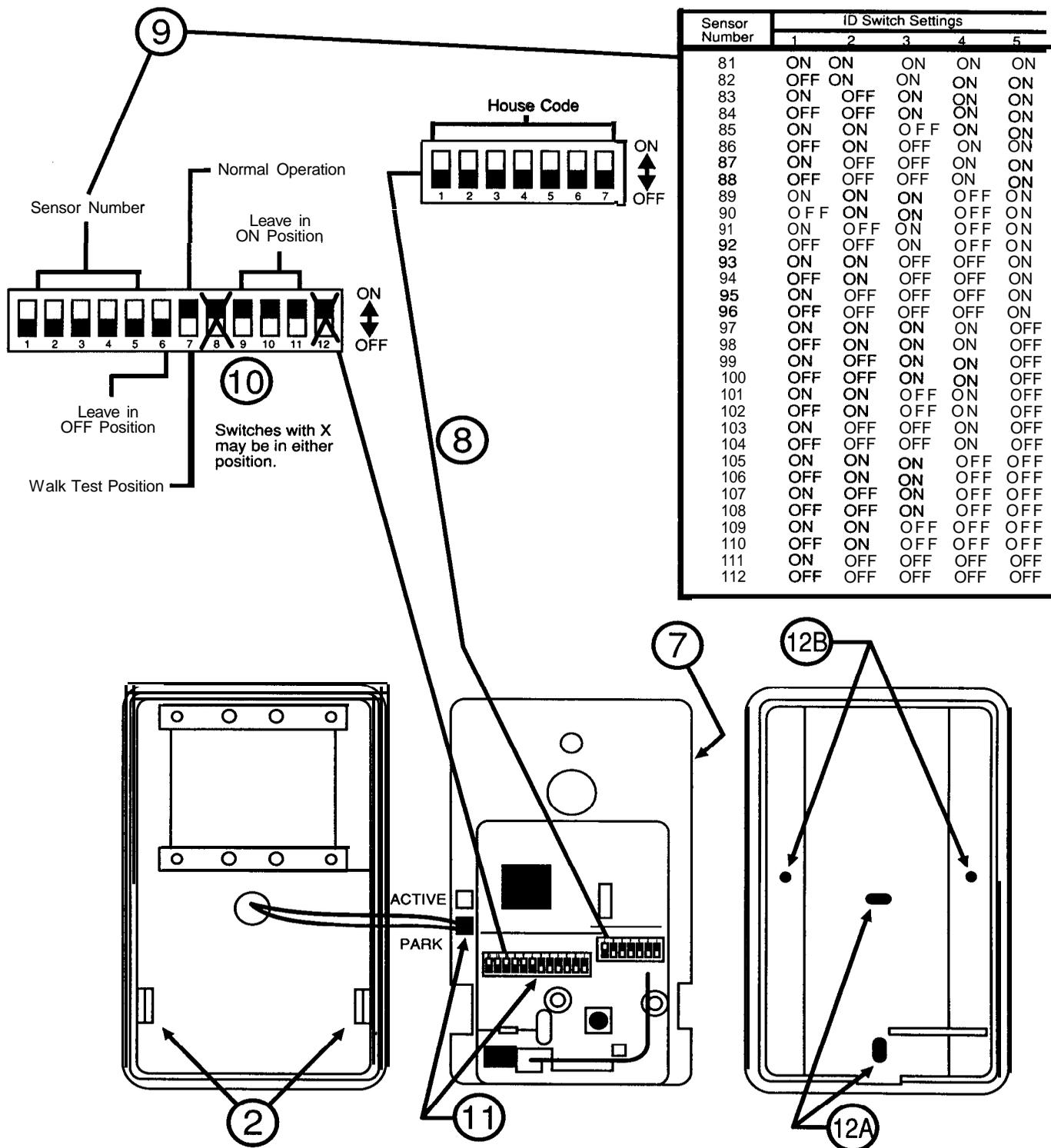


Figure A-7 Passive Infrared Detector (PIR)

Passive Infrared Transmitter (PIR)

Model 8561

Description: This supervised infrared detector and transmitter is a space protector which detects intruders by observing the infrared energy they emit as they cross the optical detection zones. After sending an alarm, the PIR waits 2-1/2 minutes before sending another, to preserve its battery. It can be used in perimeter applications to protect windows or in interior applications to protect hallways, stairways, and rooms.

Two lenses are included with the PIR, a wide angle lens and a curtain lens. The wide angle lens provides broad coverage over a large space, such as a room. With this lens installed, the PIR's detection pattern consists of 24 zones plus three special look-down zones to protect the area beneath the transmitter.

The curtain lens provides more restricted coverage to protect a longer, narrower area such as a hallway. This lens gives the PIR 3 zones plus 3 look-down zones.

important Preinstallation Considerations: Unit placement controls the detection pattern, and therefore the unit's effectiveness. The PIR may be mounted flat or in a corner. The unit should be mounted 7'6" from the floor to obtain the optimum detection range. Allow at least 2" between the unit and the ceiling to permit servicing. For best protection, observe these precautions:

1. Avoid direct sunlight. Don't place the unit where strong sunlight will fall on the face. (Indirect sunlight does not pose a problem.)
2. Avoid hot and cold air currents. Mount at least 3' from forced air heaters, air conditioners, and drafty doors.
3. Avoid very warm spots. The PIR detects the temperature difference between the intruder and the background environment. If the background is 95 to 100 F an intruder will not stand out against it.

4. Choose a location at right angles to the likely intruder's path. Detection is optimized when the target is moving across the PIR's viewing plane.
5. Avoid large objects in the viewing paths, Obstructions "blind" the PIR.
6. Choose the right lens. Use the wide angle lens for large coverage areas. Use the curtain lens for a longer narrower coverage. Units are shipped with the wide angle lens in place.

Changing PIR Lenses: Use the following procedure to change PIR lenses. The circled numbers correspond to the step numbers.

1. Remove the transmitter backplate by pressing down on the release tab and pivoting the plate off its bottom hinges.
2. Press out on the tabs inside the housing and carefully lift the circuit board free of the cover (#2 in the following figure).
3. Press outward on the vertical supports which hold the lens brackets.
4. Remove the lens brackets and the current lens.
5. Place the desired lens under the top and bottom tabs.
6. Replace the lens brackets carefully to avoid scratching the lens.
7. While the PIR is open, install batteries (two 9-volt alkalines, such as Duracell MN1604 or Eveready 522). Proceed to Settings/Connections to set the PIR's switches.

Settings/Connections: Be sure you have the proper orientation on the switches and make the following settings. The circled numbers refer to the step numbers below.

8. Set the house code to match the code set in the Wireless Receiver Module.
9. Set the sensor number using the chart as a guide.
10. Set switch 6 OFF, and 9, 10, and 11 ON; switches 8 and 12 may be in either position.

Walk Test LED:

11. To take advantage of the visual walk test, place the LED jumper on the Active posts and set switch 7 to the OFF (walk test) position.

NOTE:

Remember to move the jumper back to the Park posts and set switch 7 to ON (normal) or else the batteries will run down more rapidly.

Mount/Install: Mount to a flat wall with screws through the two oval holes in the backplate (circle 12A). Mount in a corner with screws at the dimples on the inside sides of the backplate (circle 12B).

D

Using the Listen-In/Talk-Back Feature

The Security System 8300 has a Listen-In/Talk-Back feature that can be used by monitoring services that support this feature. Listen-In/Talk-Back is not *allowed for UL-listed installations*.

The Listen-In/Talk-Back feature provides three communication modes:

- one-way talk-back mode
- two-way voice mode
- one-way listen-in mode.

By pressing buttons on a touch-tone phone, the monitoring service operator can:

- talk to someone at the premises
- have a two-way conversation with someone at the premises
- listen to talking and other sounds at the premises
- turn off sirens at the premises
- begin another listen-in/talk-back period
- immediately end communication.

Only the monitoring service operator can control the Listen-In/Talk-Back feature and command the system by pressing buttons on a touch-tone phone connected to the receiver. A person at the premises cannot control this feature, except to end listen-in/talk-back by disarming the system.

The following sections describe how the Security System 8300's Listen-In/Talk-Back feature works in its different modes and how the feature is controlled by the monitoring service operator. They also explain how to program the system to enable the Listen-In/Talk-Back feature, and provide information about how the feature works with selected monitoring service receivers. Although the four receivers discussed in these sections have been verified by Underwriter Laboratories as compatible with the Security System 8300, UL does not allow Listen-In/Talk Back for UL-listed installations.

Understanding the Listen-In/Talk-Back Feature

When the monitoring service's receiver successfully receives an alarm from the Security System 8300, it automatically sends a tone to the system to acknowledge receipt of the alarm and to restore the phone line at the premises for further use. This tone is called "kiss-off." When Listen-In/Talk-Back is *not* enabled, the Security System 8300 hangs-up immediately after receiving kiss-off in response to the last alarm sent during a call from the system.

When Listen-In/Talk-Back is enabled, the system does not hang-up immediately after kiss-off. Instead, the system stays on the phone line for 90 seconds after kiss-off. The system automatically enters the listen-in mode. The sirens at the keypads are silenced and the microphones in all Display Control Keypads are turned on. The message "Voice Active" appears on all Display Control Keypads. The monitoring service operator can pick up a touch-tone phone connected to the receiver and listen to sounds at the premises for the remainder of the 90-second listen-in/talk-back period.

People at the premises might be concerned that the monitoring service can eavesdrop on them at any time. Remind concerned customers that Listen-In/Talk-Back is possible only during an alarm. Tell them they can turn off the Listen-In/Talk-Back feature by disarming the system. Also, when the Listen-In/Talk-Back feature is in use, and was triggered by an alarm *other than* a silent alarm, the message "Voice Active" appears on all Display Control Keypads.

During the first 90-second listen-in/talk-back period, the "Voice Active" message appears and a monitoring service operator could be listening. However, someone at the premises does not have confirmation at this time that a monitoring service operator is listening. When the monitoring service operator presses button 1, 2, 3, 7 or 0, a listen-in/talk-back confirmation tone is emitted at all Display Control Keypads. This single tone confirms to someone at the premises that an operator is listening.

If a silent alarm triggers the listen-in/talk-back period, the "Voice Active" message does not appear and the Display Control Keypads do not emit a listen-in/talk-back confirmation tone. A silent alarm is generated in either of the following ways:

- when the user enters an ambush code
- when the alarm is generated by a sensor assigned to the silent panic zone category.

NOTE:

The Display Control Keypad's dip switch 4 must be set to chime for the keypad to emit the listen-in/talk-back confirmation tone in listen-in mode. Also, the keypad's volume control must not be set to the lowest level.

Changing Listen-In/Talk-Back Modes

If the alarm that triggers the Listen-In/Talk-Back feature is not a silent alarm, the monitoring service operator can change the listen-in/talk-back mode. During the first 90-second listen-in/talk-back period, as well as during subsequent periods, the operator can turn on other listen-in/talk-back modes by pressing buttons on a touch-tone phone connected to the receiver. The operator can change modes as often as

desired. Each time the operator changes modes, another 90-second listen-in/talk-back period begins.

When the operator presses a button for the first time, and an alarm other than a silent alarm triggered the listen-in/talk-back period, all Display Control Keypads set to chime emit a listen-in/talk-back confirmation tone indicating that a monitoring service operator is listening. The message "Voice Active" continues to appear on all Display Control Keypads.

To change modes and begin another 90-second listen-in/talk-back period, the monitoring service operator can:

- Press button 1 to turn on the one-way talk-back mode and begin another listen-in/talk-back period. The monitoring service operator can talk to someone at the premises. A person at the premises cannot talk to the monitoring service operator. This mode is not available if the alarm that triggered the original listen-in/talk-back period is a silent alarm.
- Press button 2 to turn on the two-way voice mode and begin another listen-in/talk-back period. People at both locations can talk and hear each other. This mode is not available if the alarm that triggered the original listen-in/talk-back period is a silent alarm.

NOTE:

Under some circumstances, such as when there is excessive noise at the premises, Display Control Keypads do not permit use of the two-way voice mode. To carry on a conversation, the monitoring service operator must change between the one-way talk-back mode and the one-way listen-in mode.

- Press button 3 to turn on the one-way listen-in mode again and begin another listen-in/talk-back period. The monitoring service operator can hear people talking and listen to sounds at the premises, but **cannot** talk to people at the premises.

NOTE:

If the alarm that triggers the Listen-In/Talk-Back feature is a silent alarm, buttons 1, 2 and 3 do not change the listen-in/talk-back mode. When buttons 1, 2, or 3 are pressed, the one-way listen-in mode continues and another 90-second listen-in/talk-back period begins. The message "Voice Active" does not appear on the Display Control Keypads, and the Display Control Keypads do not emit a listen-in/talk-back confirmation tone. An intruder cannot know by looking at the Display Control Keypads that an alarm has been sent.

EXAMPLE:

The monitoring service operator monitors receipt of an intrusion alarm on the receiver. The operator picks up the phone connected to the receiver and hears the sirens at the premises. The operator presses button 0 to turn off the sirens. Someone at the premises hears a listen-in/talk-back confirmation tone at all Display Control Keypads. The message "Voice Active" appears on all Display Control Keypads.

Then, the operator presses button 2 to turn on the two-way voice mode. The operator speaks to someone at the premises and quickly determines that the person wants the police dispatched to the

premises. The operator presses button 9 to disconnect and turn back on the sirens. Then, the operator dispatches the police to the premises.

Beginning Another Listen-In/Talk-Back Period

No matter what type of alarm triggers the original listen-in/talk-back period, the monitoring service operator can choose to begin another listen-in/talk-back period. There is no limit to the the number of times the operator can begin another listen-in/talk-back period. To begin another 90-second listen-in/talk-back period, the monitoring service operator can:

- Press button 7. The message “Voice Active” continues to appear on all Display Control Keypads, unless the alarm that activated Listen-In/Talk-Back was a silent alarm. When the system sends a silent alarm, the “Voice Active” message does not appear.

If button 7 is the first button the operator pressed, and an alarm other than a silent alarm triggered the listen-in/talk-back period, all Display Control Keypads set to chime emit a tone indicating that a monitoring service operator is on the line.

Twenty seconds before the Security System 8300 hangs up, the monitoring service operator hears 4 tones to warn that the system hangs up in 20 seconds unless the operator begins another listen-in/talk-back period.

Turning Off Sirens

The monitoring service operator can turn off external sirens if their noise makes it difficult to hear. Pressing button 0 turns off sirens during a listen-in/talk-back period in any listen-in/talk-back mode.

NOTE:

Sirens cannot be turned back on by pressing button 0.

People at the premises might be tempted to turn off the sirens by disarming the system in order to communicate better with the monitoring service. Instruct customers that disarming the system turns off the Listen-In/Talk-Back feature. They should rely on the monitoring service operator to turn off the sirens by pressing button 0 so that the Listen-In/Talk-Back feature is not turned off and communication can continue.

Ending Listen-In/Talk-Back

When the operator has finished listening to sounds or talking with someone at the premises, the monitoring service operator can:

- Press button 9 to end the listen-in/talk-back connection. When the operator presses button 9, the system turns on the external sirens again, and restores the phone line.

NOTE:

When the sirens are turned off during a listen-in/talk-back period, the system continues to count down the time until the sirens are scheduled to time out. If the sirens time out during the listen-in/talk-back period, they do not turn on again when the monitoring service operator presses button 9.

If the monitoring service operator does not begin another listen-in/talk-back period by pressing buttons 1, 2, 3, or 7, the system automatically turns on the sirens again and hangs up. If the sirens time out during the listen-in/talk-back period they do not turn on again when the system hangs up.

Summary of Touch-Tone Phone Buttons

Table D-1 provides a summary of the touch-tone buttons used to control the Listen-In/Talk-Back feature.

Table D-1. Summary of Touch-Tone Phone Keys

Press	TO
0	turn off external sirens ¹
1	activate the one-way talk-back modes
2	activate the two-way voice mode
3	activate the one-way listen-in mode ^{1,2}
7	begin another 90-second listen-in/talk-back period ¹
9	hang up and turn on sirens again ¹

¹Pressing button 1, 2, 3, 7 or 0 begins a new listen-in/talk-back period.

²If a silent alarm triggers the Listen-In/Talk-Back feature, pressing buttons 1, 2, or 3 has the same effect as pressing button 7. The mode does not change.

Incoming Alarms During a Listen-In/Talk-Back Period

If a new alarm is generated during a listen-in/talk-back period, the monitoring service operator hears 8 tones to indicate that another alarm has been generated at the premises.

If a new alarm is generated during the first 90-second listen-in/talk-back period and before the monitoring service operator has pressed button 1, 2, 3, 7 or 0, the 8 tones indicating a new alarm has been generated are not emitted on the line at this time. Instead, the system waits until the monitoring service operator presses a button to change listen-in/talk-back modes, begin another listen-in/talk-back period, or turn off sirens. When the operator first presses button 1, 2, 3, 7 or 0, the system immediately emits the 8 tones to let the operator know another alarm was generated.

NOTE:

If the monitoring service operator is not listening during the first 90-second listen-in/talk-back period, alarms generated during this period are not sent until the 90-second listen-in/talk-back period has expired and the system disconnects.

When an alarm is received, the preferred action for the monitoring service operator is to press button 1, 2, 3 or 7 as soon as the receiver indicates that the connection is established. Then, the operator receives immediate notice of new alarms, and a person at the premises hears a listen-in/talk-back confirmation tone. If the operator does not press 1, 2, 3 or 7 as soon as the listen-in mode begins, he or she could wait for up to 90 seconds to learn that another alarm has been generated.

The time remaining for the monitoring service operator to take action when he or she hears the 8 tones depends on when the alarm is received.

- If the new alarm is generated **during the first** 70 seconds of the 90-second listen-in/talk-back period, the monitoring service operator has 20 seconds to begin another listen-in/talk-back period.
- If the new alarm is generated after the first 70 seconds, the monitoring service operator has the remainder of the 90-second period to begin another listen-in/talk-back period.

When the monitoring service operator hears the 8 tones indicating a new alarm has been generated, he or she must choose to take one of the following actions:

- Press button 9 to hang up and end the listen-in/talk-back period. Then, the phone line is available to allow the new alarm to be sent.
- Press button 7 to begin another 90-second listen-in/talk-back period. If the operator chooses to maintain voice contact with someone at the premises, the Security System 8300 stores the new alarm and sends it when the listen-in/talk-back period ends.

NOTE:

The monitoring service operator must press button 9 to hang up properly. If the operator hangs up the handset without pressing button 9, the system continues to hold the phone line for the remainder of the 90-second listen-in/talk-back period. During the remainder of this period, the phone line is unavailable for calls to be made or alarms to be sent, unless someone at the premises disarms the system.

EXAMPLE 1:

The monitoring service receives an intrusion alarm. The system automatically enters the listen-in mode. The operator picks up the phone connected to the receiver and listens to sounds at the premises for 10 seconds without pressing any phone buttons. At this point, the "Voice Active" message appears at all Display Control Keypads, but a person at the premises has no confirmation that an operator is listening. Also, the operator does not know if a new alarm is generated.

After listening for 20 seconds longer, the operator presses button 2 to turn on the two-way voice mode. Immediately after pressing button 2, the operator hears 8 tones indicating that another alarm has occurred. The operator has 20 seconds before the system hangs up to either begin another listen-in/talk-back period, or press button 9 to hang up and let the new alarm be sent.

EXAMPLE 2:

The monitoring service operator is talking with a person at the premises. After 70 seconds, the operator hears 4 tones to indicate that the system will disconnect in 20 seconds unless he or she takes action. Five seconds pass while the operator decides whether to hang up or begin another listen-in/talk-back period by pressing button 1, 2, 3 or 7. Before taking action, the operator hears 8 tones indicating that a new alarm has been generated. The operator has approximately 15 seconds to take action before the system hangs up.

Programming the Security System 8300 for Listen-In/Talk-Back

To program the Security System 8300 to use the Listen-In/Talk-Back feature, enable Listen-Walk-Back for Receiver 1 using Function 236. Enable Listen-In/Talk-Back for Receiver 2 using Function 246.

For the Listen-In/Talk-Back feature to work, also program:

- Function 113 System Reporting. Program the system to report remotely.
- Function 114 Reporting Type. Select either backup or duplicate/split reporting.
- Function 231/241 Receiver i/Receiver 2 Phone Number. Provide the receiver's phone number the way the Security System 8300 needs to dial it.
- Function 232/242 Receiver I/Receiver 2 Account Number. Provide the account number that identifies the premises to the receiver.

NOTE:

If the Listen-In/Talk-Back feature is enabled for an account that reports to a receiver using a pulse-tone or DTMF message format, the monitoring service must select a range of account codes as listen-in/talk-back accounts. For example, a monitoring service might assign 000 through 444 for 3-digit listen-in/talk-back accounts and 4999 through 5999 for 4-digit listen-in/talk-back accounts. Non-listen-in/talk-back accounts can be assigned numbers outside of these ranges. Then, the receiver can be programmed to identify-listen-in/talk-back accounts automatically.

If the Listen-In/Talk-Back feature is enabled for an account that is reporting to a receiver using the SIA message format, the account code is not necessary to identify the account as a listen-in/talk-back account. The SIA message packet contains information identifying the account as a listen-in/talk-back account.

- Function 233/243 Receiver 1/Receiver 2 Message Format. Select the message format for the receiver.
- Function 234/244 Receiver 1/Receiver 2 Receiver Protocol Format. Select the receiver protocol format for the receiver.
- Function 235/245 Communication Message Codes. Identify the hexadecimal character representing each type of report. Alarm reports must be enabled for the receiver in order for the receiver to use the Listen-In/Talk-Back feature. Typing zero for a report disables it.

NOTE:

When non-alarm reports are sent to a receiver from a listen-in/talk-back account, most receivers using a pulse-tone or DTMF message format automatically identify the account as a listen-in/talk-back account. The monitoring service operator might attempt to listen-in at the premises but the Security System 8300 has disconnected. The system does not allow the use of the Listen-In/Talk-Back feature when non-alarm reports are sent.

Additional information about these programming functions is provided in the section *Programming Options-Long Version*, in Chapter 3, *Programming the System*.

Monitoring Service Receiver Requirements

This section describes how the Listen-In/Talk-Back feature works with the four receivers verified by Underwriter's Laboratories as compatible with the Security System 8300. Use this information when consulting with the monitoring service to determine the best way to provide listen-in/talk-back service to your customers. The information provided about each receiver is not comprehensive. There may be ways to configure receivers to function with the Listen-In/Talk-Back feature that are not described here. Consult the owner's manual for each receiver for details about programming and to determine each unit's specifications and capabilities.

The Security System 8300 is compatible with a variety of receivers. Information about receiver compatibility is provided in *Table 3-4, Compatibility with Commonly Used Monitoring Service Receivers*, in the section *Receiver Compatibility* in Chapter 3, *Programming the System*. Underwriter Laboratories has verified the following four receivers as compatible with the Security System 8300:

- Ademco 685
- Osborne-Hoffman Model II
- Radionics 6500
- Silent Knight 9000.

NOTE:

Although the four receivers discussed in these sections have been verified by Underwriter Laboratories as compatible with the Security System 8300, UL does not allow Listen-In/Talk-Back for UL-listed installations.

Index

Symbols

..., 4-2, GL-2
<, 3-11
>>, 3-15

A

Abbreviated Arming, 3-9, 3-12, GL-1
Access Code, 1-3, 1-4, 1-5, 3-1, 3-20, 3-21, 3-22,
5-1, 5-2, 5-4, A-13, B-1, GL-2, GL-3
Access Level, 3-22
AdCom, 2-13, 3-12, 3-15, 3-16
Alarm Cycle, 5-3
Arm, 1-3, 2-20, 3-9, 3-10, 3-12, 3-19, 3-20, 5-3, GL-1
Auto Force Arming, 3-10, 3-19, GL-1

B

Battery Replacement, 5-4
Bypass, 1-5, 3-9, 3-10, 3-12, 3-15, 3-16, 3-17, 3-19,
3-21, 3-26, 3-27, 3-28, GL-1, GL-2, GL-3

C

Cancel, 2-20, 2-22, 3-9, 3-10, 3-15, 3-16, 3-21, 3-27,
5-2
CCU, 1-3, 1-5, 1-6, 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-9,
2-10, 2-12, 2-15, 2-16, 2-20, 2-22, 2-23, 3-1,
3-5, 3-9, 3-11, 3-14, 3-19, 3-20, 3-21, 3-22,
3-23, 3-25, 3-27, 3-28, 4-1, 4-2, 4-3, 5-1, 5-2,
5-3, 5-4, 5-5, A-1, A-2, A-3, A-4, A-5, A-8,
A-10, GL-1, GL-2, GL-4, GL-5

Character Entry, 3-3, 3-11, GL-3
Character Entry (Apostrophe), 3-3
Character Entry (Backspace), 3-3
Character Entry (Number), 3-3, 3-1 1
Character Entry (space), 3-3
Chime, 1-3, 1-4, 2-3, 2-21, 2-22, 3-8, 3-10, 3-17,
3-20, 3-25, 5-2, 5-3, GL-2, GL-4
Closing Report, 3-17, 3-27, 3-28
Code, 1-3, 1-4, 1-5, 2-3, 2-23, 3-1, 3-2, 3-9, 3-10,
3-11, 3-12, 3-14, 3-15, 3-22, 3-23, 3-26, 3-27,
3-28, 3-29, 4-1, 5-3, 5-4, A-4, A-6, A-8, A-13,
B-1, B-2, B-4, B-5, B-6, GL-1, GL-2, GL-3, GL-4
Communication Control Unit (CCU), 1-3, 2-1 2, GL-2
Control Center, 5-1, GL-2, GL-3
Control Keypad, 1-2, 1-3, 1-4, 2-1, 2-2, 2-3, 2-5, 2-6,
2-10, 2-11, 2-20, 2-21, 2-22, 3-5, 3-23, 3-28,
4-1, 5-1, A-1, A-2, GL-2, GL-3

D

Date, 1-3, 5-1
Disarm, 2-20, 2-24, 3-10, 3-21, 3-25, 5-3, GL-1, GL-2
Display Control Center, 5-1, GL-3
Duress, 3-22, 3-23, 5-3, A-6, B-1, GL-2
Duress Code, 3-22, 3-23, A-6, GL-2

E

Earth Ground, 2-3, 2-5, 2-6
Entry Delay, 3-19
Event History, 3-17, 5-1, 5-3, GL-2
Exit Delay, 3-9, 3-13

F

Follower, 3-8, 3-10, 3-17, 3-25, 4-4, GL-2, GL-4

G

Ground Start, 1-3, 2-16, 3-9, 3-13

H

Hardwire Smoke Detectors, 2-4, 2-24, 3-21, 5-5
Hardwired, 1-2, 1-3, 1-5, 1-7, 2-4, 2-5, 2-17, 2-18,
2-23, 3-8, 3-10, 3-18, 3-19, 3-23, 3-25, 3-27,
3-28, 4-2, 4-3, 5-4, 5-5, A-1, A-3, A-5, B-1, B-2,
B-4, GL-5
History Buffer, 3-9, 3-12, 3-15, 3-16, 3-17, 3-27, 3-28,
3-29, GL-2

I

InfraRed Detector, 1-6, A-12
Interruptible Power, 1-3, 2-4, 2-5, 2-6, 2-19, 5-1, 5-5

K

Keypad, 1-2, 1-3, 1-4, 1-5, 2-1, 2-2, 2-3, 2-4, 2-5,
2-6, 2-10, 2-11, 2-18, 2-20, 2-21, 2-22, 3-2, 3-5,
3-9, 3-10, 3-11, 3-23, 3-28, 4-1, 4-3, 5-1, 5-2,
5-3, 5-5, A-1, A-5, B-4, GL-1, GL-2, GL-3
Keypad Supervision, 2-5, 5-5

L

Level of Protection, 1-2, 1-4, 1-5, 2-3, 2-22, 2-24, 3-2,
3-8, 3-12, 3-20, 3-21, 3-23, 3-25, 4-1, 4-2, 4-3,
5-2, 5-3, A-5, GL-1, GL-2, GL-3, GL-4
Lockout, 3-9, 3-12, A-6

M

Message Format, 3/1, 4/1, Extended, 3-9, 3-14, 3-15,
3-30
Message Format 4/9, 3-9, 3-14, 3-15, 3-29, 3-30
Message Format, SIA, 3-28
Monitoring Service, I-I, 1-3, 1-4, 2-3, 2-12, 3-2, 3-9,
3-11, 3-12, 3-14, 3-15, 3-16, 3-17, 3-26, 3-30,
5-1, 5-2, 5-3, 5-4, B-1, B-2, B-6, B-7, GL-1,
GL-2, GL-3

O

Opening Report, 3-17, 3-27, 3-28

P

Passive Infrared (PIR), 1-6, 4-4, A-3, A-6, A-8, A-12,
A-13, GL-2
Phone, 1-4, 2-2, 2-3, 2-9, 2-12, 2-13, 2-18, 2-20,
2-21, 3-9, 3-13, 3-14, 3-15, 5-2, 5-3, 5-5, A-3,
GL-1, GL-3
PIR (Passive Infrared), 1-6, 4-4, A-3, A-6, A-8, A-12,
A-13, GL-2
Power Loss, 3-10, 5-1, 5-4, GL-4
Priority Sensors, 3-10, 3-18, 3-19, 3-20, GL-1, GL-3

R

Receiver Compatibility, 3-14, 3-15, 3-29, 3-30
Remote Arming and Disarming, 5-3
Reset, 2-24, 3-28, 4-3, 5-1, 5-3, GL-4
Review, 1-1, 2-2, 4-3, 5-4
Ringer Equivalence, 2-13, GL-4
